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COMPUTERWORLD

IBM, Apple in pact to control desktop standard

Open systems bid sets stage for RISC battle

BY PATRICIA KEEFE
and J.A. SAVAGE
CW STAFF

Can the two companies most often derided for closed, proprietary architectures combine to produce the best open system? IBM and Apple said last week that they intend to try.

In sketching out their planned alliance, the companies said they will work together to develop an advanced version of IBM's Unix system, AIX.

The software will "combine the best of IBM's open systems with [the Macintosh interface] and its thousands of user-oriented productivity applications."

IBM said it will also continue to support the Motif interface developed by the Open Software Foundation, of which it is a member.

Making Unix an easier to use operating system is the dream of many vendors these days, and the Macintosh interface could

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IBM puts on a new face

The unprecedented alliance being forged by IBM and Apple Computer, Inc. envisions cooperation that would have seemed impossible one year ago. Here are some highlights:

- Apple's famed Macintosh interface will be melded to an advanced version of IBM's Unix operating system, AIX.
- Formation of a jointly owned company charged with developing an object-oriented software environment capable of running applications written for AIX, OS/2 and the Macintosh.
- Agreement to build future systems using the IBM Power PC chip, a single-chip implementation of the RISC System/6000 technology. IBM will team with Motorola, Inc. to build the chips.
- Joint development of platform-independent multimedia software.

CW Chart: Doreen St. John

Treaty could chill Microsoft — and freeze OS/2

BY PATRICIA KEEFE
CW STAFF

Signing its own declaration of independence last week, IBM teamed up with former desktop rival Apple Computer, Inc. in a far-reaching alliance that may rip apart the remaining shreds of IBM's longtime partnership with Microsoft Corp.

However, with IBM and Apple cooperating on a future object-oriented operating environment, the already endangered OS/2 could be the first casualty.

The alliance indicates that IBM has "abandoned" OS/2, declared Steve Ballmer, Microsoft's senior vice president of systems software. Analysts do not necessarily agree, but they concede that IBM may have to reassure customers about OS/2's evolutionary path.

In fact, an IBM spokesman acknowledged that the new object-oriented operating system will replace OS/2 in about four years. However, he said, IBM will ensure "complete and undiminished support" for the installed base of OS/2.

Together, the two computing giants control 40% of the installed desktop market, although growth in the personal computer clone market has significantly cut into annual market share.

Formerly at opposite ends of the computer culture, the firms

Continued on page 103

Phone companies hunt for cure to switch woes

BY GARY H. ANTHES
CW STAFF

Regional telephone companies were scrambling last week to pinpoint the cause of sporadic network failures that have plagued the newly installed of advanced switching technology.

Bell Communications Research Corp., the research consortium of the seven regional Bell telephone companies, established a multivendor team that is working around the clock to determine the cause of failures that have hit millions of telephone users in five states and the District of Columbia during the past 10 days.

The investigation team is looking into a range of possibilities, from faulty software to the "remote possibility" of viruses and other mischief, said John O'Rourke, Bellcore assistant vice president for switching technology assessment.

The failures involve Bell Atlantic Corp.'s and Pacific Bell's common-channel Signaling System 7 networks equipped with digital switches, called Signal Transfer Points, provided by DSC Communications Corp. in Plano, Texas.

Frank Dzubeck, president of Washington, D.C.-based Communications Network Architects, Inc., said problems with SS7 may stem from insufficient testing in the face of market and stockholder pressure to launch

Continued on page 6

Unix slow to scrap custom wrappers

BY J. A. SAVAGE
and JOHANNA AMBROSIO
CW STAFF

Last in a three-part series.

Users clearly desire Unix applications that would not require tweaking or struggling in order to work across multiple platforms. While the industry is headed toward such shrink-wrapped software, it is also clear that users will still need to either tinker with the packages or sacrifice computer power when they run them.

"You'd like to have one version of a [Unix-based] application to download to every personal computer so everyone is working on the same version," said Charles Gardner, director of information technology infrastructure at Eastman Kodak Co.'s Photographic Products Group in Rochester, N.Y. "We have about 60,000 PCs at Kodak, so it's something that we'd like."

However, Gardner said, "this won't happen tomorrow. And we may not get all the way there — we may have two versions of an application."

In the interim, the brunt of working with different hardware architectures and operating system versions will continue to be borne by users, who will have to recompile applications to get them to work — much as they already do. Depending on the application's size and complexity and the hardware platforms involved, that process can take anywhere from one week to one month to complete, users said.

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Users target software prices

Group holds closed-door talks with key vendors

BY JOHANNA AMBROSIO
CW STAFF

STAMFORD, Conn. — Driven by frustration and anger over some software pricing issues, 30 large user organizations have quietly banded together in an effort to foster changes in vendors' policies.

Although the group has not formally gone public and may not do so until next year, members of the newly formed Software Asset Management Interest Group met with four vendors in Chicago in mid-June, according to sources.

Attendees said the following companies made presentations to the group: Computer Associates International, Inc. in Garden City, N.Y.; Legent Corp. in Vienna, Va.; Hewlett-Packard Co. in Cupertino, Calif.; and Digital Equipment Corp. in Maynard, Mass.

Chuck Riegel, vice president of marketing at Legent, said last month's meeting will affect his company's pricing policies.

"One thing is resolved as a result of that meeting: Our attitude will change," he said. "We will be flexible about pricing policies. We will continue to do whatever we can to resolve these issues."

Among the issues discussed at that meeting were maintenance policies, inconsistencies among different vendors' policies and practices, alternatives to tiered pricing and problem resolution channels. Alternative pricing schemes discussed were

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Product Spotlight — There's hope for the non-artistic business user: PC presentation graphics software offers plenty of easy-to-use features. Page 67.

IBM Application System/400 users grapple with issues of justifying costs to upgrade to D series models. Page 4.

Data General readies MV series upgrade systems. Page 12.

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"I have no intention of leaving. I have a lot invested here, and I want to be around to collect my reward."

RICK MILLER
WANG

On his future. See story page 6.

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EXECUTIVE BRIEFING

■ **Last week's rumor is this week's news** as IBM and Apple propose a multilevel alliance. Plans call for a joint-venture firm to tackle object-oriented software; Macintoshes integrated into IBM's computing environment; future workstations from both firms on a single-chip version of IBM's Power RISC; and combined efforts on multimedia. The heady pact could help break the Fortune 500 barrier for Apple while giving IBM more desktop clout and Motorola a shot at RISC superstardom. Meanwhile, rivals such as Microsoft and Intel sustain body blows. But the big word is still *could*, industry observers say — and antitrust questions could dog the deal, if done. **Pages 1, 102 and 103.**

■ **With $1.5 million in operations savings** and a 90% improvement in certain document processing turnaround times, Cigna RE doesn't care whether you call it re-engineering or business process redesign. All the reinsurance firm knows is that those are some of the megabenefits it reaped in its move to a team structure and a PC-based client management system. **Page 79.**

■ **Thirty large user organizations are banding together** to compel attention and action from software vendors on pricing and other issues. Even before the supergroup goes public, major vendors are taking heed. **Page 1.**

■ **Mainframe-to-Unix conversion** can be a do-it-yourself deal, say users who have done it. Methods depend on size, age and complexity of the application. Rewards include price/performance gains, lower maintenance costs and software that end users already know and like. **Page 27.**

■ **Diaries of two job seekers:** A 12-year programmer and a 20-year IS manager embark on job searches after finding themselves unemployed. Their No. 1 tool? Networking. **Page 88.**

■ **Shrink-wrapped Unix** is clearly what users want — but come-and-get-it day is years away, industry observers say. Last of a three-part series. **Page 1.**

■ **Bell operating companies are pooling forces** to find and fix a series of hardware and software glitches that are the leading suspects in a rash of recent telephone outages. **Page 1.**

■ **IS managers heading down a systems integration route** should make sure their contracts cover these issues: extent of the systems integrator's services, factory vs. blanket warranties, data conversion, and training and support. **Page 95.**

■ **Armed with a cross-compiler** that can convert an entire program library at one command, Deutsche Bank AG's Vienna subsidiary ported its multicurrency investment banking software suite from the Wang VS to IBM's AS/400. **Page 27.**

■ **On site this week:** Talk about mission-critical — the San Onofre Nuclear Generation Station in San Clemente, Calif., is trusting a Novell LAN to carry documents that guide plant maintenance and repair. **Page 47.** The Strategic Systems Initiative is a three-year, $50 million revamping of The New England's IS group from the ground up. Spearheaded by Senior Vice President Michael Brown, the plan aims to make industry showcases of the firm's independent agencies and a world-class service provider of the $17 billion insurance firm. **Page 57.** Sacramento, Calif.-based Teale Data Center, IS provider to many state agencies, houses all information on veterans' loans, mortgages and health benefits. The data is slated for travel across a new statewide system of networks this summer. **Page 39.**

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Singing the AS/400 upgrade blues

BY MARYFRAN JOHNSON
CW STAFF

Too much of a good thing is making some IBM customers a bit queasy these days as they contemplate the costly business of upgrading to the new Application System/400 D models.

While unquestionably a welcome relief for customers running out of capacity on the older AS/400 B models, the dramatic mid-life upgrade is forcing some difficult decisions on users with stagnated budgets. The expense of replacing third-party memory and additional costs associated with tiered software prices are also weighing down the bill for some customers.

Barely three years into their charmed lives, the AS/400s spawned a radically different breed in late April with the introduction of 11 new models that industry analysts said hit a new mark in aggressive pricing and impressive performance for the IBM midrange.

Yet the new architecture also requires an upgrade more extensive than ever before, encompassing everything from the processor and memory boards to storage devices, controllers, racks and communications lines.

"I have been amazed at the lack of real attention to what the cost implications are of this turnover in the product line," said Michael O'Hara, director of information systems for the County of Rockingham, Va.

With $300,000 already invested in an AS/400 B45 and supporting equipment and three more years of payments left, O'Hara was dismayed to learn from his IBM representative that another $60,000 would be required to move his shop up to a Model D45. The resulting performance boost would not improve the throughput of the county's disk-intensive applications enough to justify such an expenditure, O'Hara said.

"This puts midsize users like us between a rock and a hard spot. It's the type of thing that propels shops our size to look more seriously at alternatives for future applications, rather than throwing all our eggs in the mini basket," he explained.

LAN lover

O'Hara's response to his dilemma is the stuff of IBM midrange nightmares. He plans to steer future applications away from the minicomputer to a personal computer-based local-area network instead. "We're not throwing out the AS/400 for LANs, but we're not expanding it anymore either," O'Hara explained.

The advent of OS/400 Version 2.1 is also a bit nerve-racking for users who just finished installing the previous release of the operating system — OS/400 1.3 — and are still coping with degraded performance because of it.

"Even now, we're still getting fixes for Release 1.3, and our performance degraded quite a bit," said Walter Masal, data processing manager at Duron Paints and Wallcoverings, Inc. in Beltsville, Md. "I'm going to wait until the last minute before I touch this new release."

Masal said that while he appreciates the chance to kick up his horsepower with more powerful processors, his company cannot swing an upgrade expenditure until next year. "We're looking at $380,000 to go from a Model B70 to a D80," he said.

Other users looking at upgrade options have been chagrined by hefty increases in software fees from third-party vendors. One Miami-based company was initially quoted a $200,000 upgrade fee to move a manufacturing application from an AS/400 B60 to a D60. When the IS director complained, however, the software vendor scaled the price down substantially and blamed the initial quote on a misunderstanding with the sales representative.

Third-party memory products are another financial thorn in the AS/400 upgrade because only IBM has memory boards that will run on the D models now. The "2-for-1" trade-in of B model memory for D model memory does not apply to non-IBM products, leaving users who strayed from IBM products contemplating still greater expense.

"I'm one of those unfortunates with non-IBM memory," said Michael Wegener, MIS director at North Pointe Insurance Co. in Southfield, Mich. His memory vendor, EMC Corp., is swapping out its own products with used IBM memory for Wegener to trade in, but it is still unclear whether IBM will accept used memory for trading.

Wegener said extensive troubles with the 9347 tape drives on his AS/400 may also force his shop to buy new tape drives for the D model upgrade, which will cost at least $60,000. "I think that's kind of steep, and I'm really fed up with IBM," he noted.

More for less

Application System/400 Model D50 includes more storage and a battery backup in its full configuration state and is priced $40,000 less than the older B50 model

Comparison of costs for IBM AS/400 Model B50 vs. D50

AS/400 Model B50	
Hardware cost:	$525,888
Software cost:	$80,360
Total:	$606,248
AS/400 Model D50*	
Hardware cost:	$477,358
Software cost:	$88,570
Total:	$565,928

*Model D50 also includes an additional 1.28G bytes of internal storage, 16M bytes of additional base main storage and internal battery backup.

Source: ADM, Inc. CW Chart: Doreen St. John

Babbage's Difference Engine launched — 142 years late

BY RON CONDON
IDG NEWS SERVICE

LONDON — More than 140 years after it was designed, Charles Babbage's Difference Engine finally cranked laboriously into action last week at London's Science Museum.

The museum, which strictly followed Victorian methods of manufacturing (with the help of some computer-aided design), has proved that the designs would have worked, ending years of doubt over whether the Victorian inventor's ideas for automated calculation could ever be put into practice.

The Difference Engine No. 2 was designed between 1847 and 1849 as a refinement of an earlier design that Babbage had abandoned. He offered the designs to the government of the day, but no attempt was made to build it. He had already used $28,350 of government money and an equal amount of his own money on the earlier venture.

Now, with an $810,000 sponsorship from Hewlett-Packard Co., Unisys Corp., Rank Xerox, International Computers Ltd. and Siemens-Nixdorf, along with $405,000 from the museum's own coffers, the machine has finally been assembled.

> MADE OF COGS and wheels, it has to be broken in, like a car.

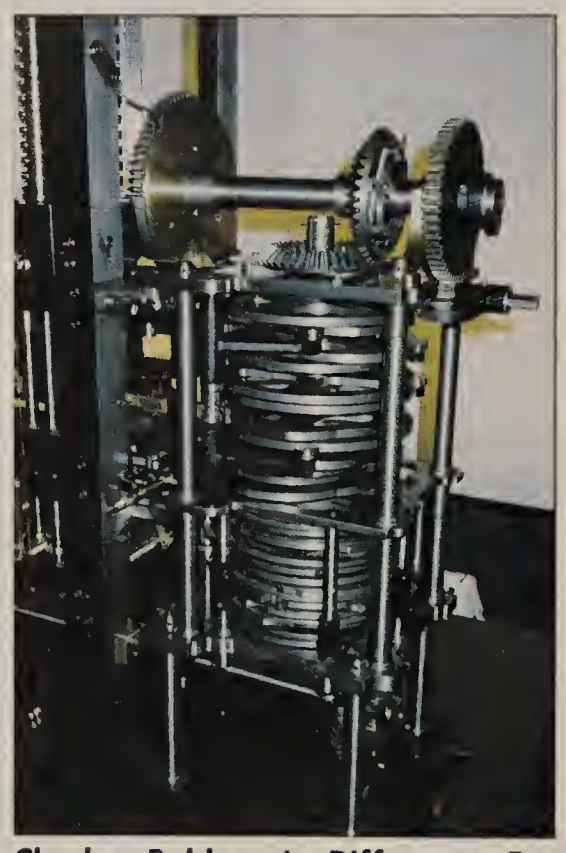
It weighs three tons, measures 7 ft high, 11 ft long and 18 in. deep and contains 4,000 parts. It is cranked manually with a handle and, according to Doron Swade, the museum's senior curator for computing, can handle seventh-order polynomials to 30 places — "no mean feat even by today's standards," Swade said.

The original design included a printer, because the main purpose of the machine was to automate the production of mathematical and navigational tables. The printer will contain an additional 4,000 parts, but approximately $324,000 needs to be found in sponsorship before work can begin on it.

Full reliability testing of the new machine will take place during the next few weeks. Made of cogs and wheels, it has to be broken in, like a car.

As for Babbage's more ambitious Analytical Engine, a true precursor of the programmable computer with "if-then" logic and stored programs, the museum estimates that it would need $1.62 million to tackle the project.

Condon is an IDG News Service correspondent based in London.



Charles Babbage's Difference Engine *weighs three tons and is 7 ft high and 11 ft long*

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NEWS SHORTS

Another down quarter for Sequent

Facing an economy in which large systems are a difficult sale, Sequent Computer Systems, Inc. said last week it will lay off about 150 employees and post a loss exceeding the $7 million it reported in its first quarter. Additionally, Sequent initially said it will also cut its OEM business. Sequent, maker of parallel processors, specifically cited Unisys Corp., which it claimed has not been moving Sequent-built systems. But in statements by both companies, the announcement was amended to say Sequent will continue to sell to Unisys on an OEM basis but not open new OEM business.

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Natural offered for OS/2

Software AG of North America, Inc. headquartered in Reston, Va., last week announced Natural OS/2, its fourth-generation language (4GL) application development environment for the OS/2 operating system. Features include forms generation, query facilities, program testing and debugging and data management capabilities. License fees range from $300 to $1,000 per user, and the product is available in a single-user version or in a network configuration. In related news, Software AG and Hewlett-Packard Co. signed a joint marketing agreement aimed at users who want to expand existing mainframe applications to client/server platforms. The contract calls for the sales and marketing of Software AG's Unix database and 4GL products, including Adabase and Natural, on HP 9000 computers.

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IBM to provide Rasterops gear

IBM's direct sales force is selling video systems from Rasterops Corp. for IBM's Personal System/2 computer line, beginning immediately. The Santa Clara, Calif.-based company signed an agreement under which IBM will market Rasterops' imaging hardware, including a 24-bit color video system based on IBM's Micro Channel Architecture. Rasterops also makes imaging equipment for the Apple Computer, Inc. Macintosh and Sun Microsystems, Inc. Sparcstation lines.

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Tie clears bankruptcy court

Tie/Communications, Inc. in Wilmington, Del., announced last week that it has emerged from Chapter 11 bankruptcy protection status after its biggest creditor helped bail out the telecommunications equipment maker. HCR Partners gave Tie interim financing and exchanged senior secured debt for 75% of Tie's common stock, allowing it to pay off other creditors.

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AMS gets outsourcing contract

American Management Systems, Inc., a systems integrator in Arlington, Va., last week announced a $54 million outsourcing contract with the U.S. Department of Interior's Minerals Management Service. The contractor will manage the Lakewood, Colo., data center as well as develop and maintain applications software for the agency's royalty management program.

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Frank joins Momenta

John Frank, who was president of Zenith Data Systems when Groupe Bull bought it from Zenith Electronics Corp., but left the company less than one year after the sale, signed on recently as vice president of sales at Momenta Corp., a start-up focusing on pen-based computing. Frank worked for Management Assistance, Inc. and Burroughs Corp. before he joined Zenith Data in 1981. He was named president there in 1987.

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DCA sells LAN business

Networking vendor Digital Communications Associates, Inc. (DCA) last week sold its 10net communications business to Tiara Computer Systems, Inc. in Mountain View, Calif., for $2.5 million. Tiara will market the 10net local-area network software and hardware line alongside its own LAN hardware. Tiara said it will also employ all DCA 10net personnel and assume operation of DCA's Dayton, Ohio, facility. Concurrent with the sale, DCA acquired a 10% interest in privately held Tiara.

More news shorts on page 104

Wang chief: No grain of truth to rumor mill

BY PATRICIA KEEFE
CW STAFF

LOWELL, Mass. — Richard Miller is expecting to find a pot of gold at the end of his rainbow of hard work, and he intends to stick around at least long enough to collect it. In short, pundits who have been predicting his departure could not be more off the mark, said the 50-year-old president of Wang Laboratories, Inc. in a recent interview.

"I have no intention of leaving. I have a lot invested here, and I want to be around to collect my reward. I intend to be here for the long haul," he said.

Despite a recent $25 million investment in his company by IBM, Miller firmly squelched speculation about a buyout. "It is not Wang's [intent to sell] or IBM's intention to buy Wang," he said, noting that the Wang family still owns controlling interest in the company. Nor is Wang interested in selling off pieces of the business, as some have suggested.

VS still valid

The same sharp dismissal undercut rumors that had predicted Wang would jettison service and support responsibilities for its VS line. Nothing could be further from the truth, snapped Miller, who claimed that option was never under consideration. "The VS is our primary revenue provider, and we aren't giving up a piece of that to anyone."

"We are committed to continuing the VS. We will continue to invest in the VS. We have no intention of abandoning the VS — there will be future models beyond the fall delivery" of the next line, Miller said.

Wang's Miller: *'I intend to be here for the long haul'*

Those investments, according to Miller, will "complement" what IBM provides. Users can expect to see improved price/performance and a shifting of the overall VS direction toward image and personal computer local-area network servers.

A confident and somewhat feisty Miller also insisted that it is not a given that Wang users will have to migrate to IBM hardware. "I don't think it is inevitable — it's the customer's choice."

Bemoaning the toughest part of his job, a series of layoffs that have trimmed Wang's work force by 10,500 since August 1989, Miller said it nonetheless had to be done. Two weeks ago [CW, July 1], Wang announced added layoffs of 3,000 to 4,000 employees.

"I don't envision any more major changes. With the alliance and reorganization, we should have a good working model for some time," he said.

Users and Wall Street can expect to get a more precise picture of Wang's situation later this month. By then, Miller said, he will know how he wants to reduce the "infrastructure" and overall costs. These cuts "will be significant," he continued.

Flying in the face of critics, an optimistic Miller said Wang will be a successful player in two years, if it is able to reverse its current revenue flow.

The customer base is stable, he claimed, but revenue is declining because users are buying less. "What we have to do with the new Office 2000, VS, IBM products is to stabilize the erosion of revenue. We've got to do this before we can grow," he conceded.

Meanwhile, he claimed to have spoken with most of Wang's large customers about the deal with IBM. "Ninety percent think it's a great deal for us. Many think there is far less risk in the VS than there was two weeks ago," he said. "The customer now knows that VS is not a dead end because they can migrate to an industry-standard platform down the road."

Phone

FROM PAGE 1

new telephone services quickly. He said DSC may have performed high-volume "stress testing" of its software without also adding abnormal conditions on top of the high volumes.

Dzubeck predicted more network failures but said telephone companies will now focus much more on contingency planning, something he said has received low priority so far.

Berge Ayvazian, vice president of communications research at The Yankee Group in Boston, said the local exchange carriers may ultimately have to re-architect their SS7 networks, making older, in-band network technology a backup for the out-of-band SS7 network and their STPs.

That is what AT&T eventually did in the aftermath of the nine-hour Martin Luther King Day network outage last year.

O'Rourke and other company officials at a press conference turned aside suggestions that SS7 architecture may be fundamentally flawed, saying SS7 protocols are extremely well-tested and are used successfully around the world.

SS7 provides routes that are separate from data/voice paths for the movement of network control information. That reduces call setup time and enables new services such as caller identification and advanced call forwarding. Because it allows these money-making add-on services, the regional Bell companies have embarked on ambitious rollouts, most involving the use of the DSC switches thought to play a role in the recent problems.

The outages seem to have stemmed from different causes, but in each case, a hardware or software fault triggered an avalanche of diagnostic messages that overwhelmed network switches and shut them down.

Bugs possible

O'Rourke said recently installed software might have contained bugs, but he deemed that unlikely because the various DSC STPs where the problems originated are running different software releases. "We cannot pin this on a specific piece of software," he said.

The STPs may lack the processing power to handle peak loads, or the software may not be able to handle unexpected combinations of events including peak traffic loads combined with error messages resulting from more or less routine hardware failures, according to O'Rourke. Another possibility is that SS7 protocols were not implemented uniformly on different types of network equipment, he added.

O'Rourke said security teams at each of the companies are looking into the possibility that viruses or other hacker mischief may be the cause, although he called that "a remote possibility." He declined to answer a question about possible involvement of the Federal Bureau of Investigation but said the task force is working with federal agencies.

A spokesman for Ameritech said the company has four pairs of DSC STPs and has had no problems with them or with its SS7 network. Nevertheless, Ameritech has temporarily shelved plans to make some changes in its SS7 network and has installed software patches provided by DSC in the wake of the Bell Atlantic outage 10 days ago that knocked out service to 6.3 million telephones for more than six hours in Maryland, Virginia, West Virginia and Washington, D.C.

Motorola stakes internal networking on OSI

BY ELISABETH HORWITT
CW STAFF

SCHAUMBURG, Ill. — Motorola, Inc. has decided to stake its long-term networking strategy on Open Systems Interconnect (OSI) — and on the standard becoming an intrinsic part of IBM's networking strategy within the next few years.

The recently finalized Motorola Data Network Architecture, scheduled to be in place by the end of next year, aims at allowing "islands of expertise" throughout the company to freely exchange "solutions, problems and information," according to Jon Tegethoff, the document's primary author and current chairman of Motorola's electronic-mail committee. The major barrier the new system has to overcome is the wide variety of proprietary systems now being used.

An even tougher obstacle to corporatewide communications may be business units' traditional isolationism, said Art Cipolla, Motorola's director of network operations. "Today we have several hundred LANs connected, but this is not much good if people don't use the link."

Those early users of the links are reporting major paybacks. For example, designers at Motorola's Semiconductor Products Sector have been able to halve the time it takes to design an integrated circuit by communicating approvals and changes electronically. "There are some cost savings, but one real impact [of the new architecture] is in reduced cycle time," Tegethoff said. "How do you calculate the benefit of getting a product to market six months earlier?"

A major impetus for the architecture came two years ago, when Motorola brought in Ernst & Young to do a study of network trends within the company. At that time, IBM's Systems Network Architecture (SNA) accounted for 90% to 95% of all intersite Motorola traffic.

However, after interviewing a number of users, the consulting company concluded that local-area network-based, non-SNA traffic would account for the majority of intersite traffic by 1992.

"We found ourselves at a transition point," Cipolla said. Engineers wanted their Unix systems to be able to communicate between sites, as well as within LANs, using Transmission Control Protocol/Internet Protocol (TCP/IP), and a growing number of users were getting off hosts and onto LANs.

Motorola expects traffic on its SNA network — now comprising some 70,000 devices — to keep on growing, albeit slowly, Tegethoff said. However, the information systems department has concluded that the existing backbone SNA front ends are too expensive and proprietary to interconnect Motorola's wide variety of LAN systems, he added. Motorola is now in the process of interconnecting LANs corporatewide via hundreds of Cisco Systems, Inc. routers.

The company is using TCP/IP as an interim de facto networking standard that fills in where OSI still lacks full functionality and vendor support, Tegethoff said. For example, engineers on Unix systems now communicate with IBM hosts via TCP/IP.

Even with standards, the interconnectivity task is hard, given that users have always had free choice of their computing systems. For example, it took the company a year and a half to integrate approximately eight E-mail systems.

Motorola plans to migrate all systems to OSI eventually, including its approximately 70,000 SNA devices. However, the company does not expect IBM to fully integrate OSI into its major systems for a few years, Tegethoff said.

IBM makes deal with Siemens AG

Rolling along on its deal-making rampage, IBM announced last week that it has signed an agreement with Siemens AG of Berlin/Munich. The capital investment of several hundred million dollars will be shared by both companies.

The joint effort will result in the manufacture of 16M-bit dynamic random-access memory chips at IBM's Corbeil-Essonnes facility in France. Both vendors displayed 16M-bit DRAM samples in 1990.

Production on the project will start at the end of 1991, with output set for the second half of 1992. It will be based on the semiconductor process technology already existing at Corbeil-Essonnes.

Initially, the facility will plan for 600 wafer starts per day, which may be expanded later. The project will be staffed by approximately 600 specialists from both IBM and Siemens.

Jack D. Kuehler, president of IBM, characterized the agreement as furthering IBM's technology strategy, which is to "strengthen both the U.S. and European technology sectors."

In January 1990, the companies jointly agreed to develop 64 million memory chips, concentrating the work on chip design and process technology. The project's goal is to introduce a world standard 64M-bit DRAM chip for the commercial marketplace in the mid-1990s.

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Blue-light mainframe specials

IBM big iron users say they're seeing deeper discounts than ever before

BY JEAN S. BOZMAN
CW STAFF

IBM and compatible mainframes are being sold at near-record discounts ranging from 20% to 50%, according to industry analysts and users at some of the nation's largest data centers.

The discounts can run very deep in some cases, analysts said. "We are seeing quite a lot of 40% to 50% discounting on mainframes," said Frank Gens, vice president at Framingham, Mass.-based Technology Investment Strategies Corp., which studies the purchasing patterns of mainframe buyers.

"I've checked it out, and I know we can get a 20% to 30% discount on new Amdahl equipment," said an information systems manager at a Chicago-area insurance company. "But our philosophy is that we're not going to go for the 'blue-light' specials just because they're there."

IBM's pricing policies have not changed much in recent months, but the final decision on what price a specific customer pays has changed, an IBM spokesman said last week.

"There is no new pricing structure within IBM, and our basic pricing methodology hasn't changed," IBM corporate spokesman Rob Wilson said.

But, Wilson said, "we have decentralized our decision-making, meaning that many more decisions are now made closer to the customer by the executives who work with those customers and who know those customers best." IBM has 64 "trading areas" within the U.S., each of which has separate authority to make its own pricing decisions, based on the basic pricing rules, IBM said.

Carving the pie

With no growth in U.S. mainframe installations last year, it's a buyer's market

U.S. installations

	IBM mainframes	IBM-compatible mainframes
1986	20,834	1,998
1987	23,028	1,880
1988	25,419	1,855
1989	25,636	1,633
1990	25,391	1,495

Source: Computer Intelligence — CW Chart: Tom Monahan

"The profit margins are coming down — they are for everyone," said Gary Moore, chief executive officer of Hitachi Data Systems, Inc. (HDS) in Santa Clara, Calif. "The market is not growing as fast as it was. If you're trying to gain market share, you don't want to lose footprint; you don't even want to lose a string of disk drives."

Amdahl Corp., the other leading supplier of IBM-compatible systems, acknowledged that it is also fighting in the price wars.

"We are encountering competitive pricing pressure, but we are not going to quantify the extent of the discounting," a company spokesman said.

The downward price spiral has been going on for many months, sparked by mainframe competition and a sour economy. "When you have a recession, it takes discounting or lower prices to pry away a few orders," said Bob Djurdjevic, president of Phoenix-based Annex Research.

The older the cheaper

Gens said discounts are best for older machines such as IBM 3090 Model 720s, Amdahl 5995 Model A computers and the older models in HDS' EX series. Deep discounts on the latest generation of mainframes, including IBM Enterprise System/9000s, tend to be less common. The best deals on computers often come as part of a market-basket offer that packages a mainframe, disk drives and other peripherals.

Kenneth Pontikes, chairman and CEO of Comdisco, Inc., the large computer leasing firm, pegs IBM's pricing strategy on its need to push "iron" out the factory door. Before U.S. tax laws favoring computer leasing changed in 1986, IBM had a huge rental base that shielded it from market conditions, he said. "I think this is the first time you've had IBM trying to operate in a recessionary environment without having a huge rental base to buffer it," Pontikes said.

Users cast varied mainframe roles

BY ROSEMARY HAMILTON
CW STAFF

One year ago this month, IBM outlined a long-term mainframe strategy that would change the role of large systems from general-purpose workhorses to dedicated processors and managers of the corporate computing environment.

IBM painted a picture of a large corporate hub made up of many tightly connected, dedicated processors. Each would handle a specific corporatewide function, such as enterprise data management, network management and applications development as well as operations such as sorting and security.

As of today, IBM has provided a limited set of functions for this multiyear plan. However, several large IBM shops said they do not need to wait for IBM's delivery of all the goods. Instead, they are implementing their own strategies to transform mainframes.

"We are moving right along," James Harmon, manager of systems integration at Vanderbilt University Medical Center in Nashville, said of the center's plans to create a corporate data server. Using DB2 on a new Enterprise System/9000, the hospital's information systems team is creating a central database that will be the keeper of all critical, hospitalwide information.

Harmon, along with several other executives interviewed last week, said he is supportive of IBM's plans but wants to move ahead now. However, a few IS executives interviewed said they need more tools from IBM to achieve their goals.

"I see no evidence of [the new mainframe] happening," said Steven Pook, director of IS at Engelhard Corp. in Iselin, N.J. "Like [IBM's concept of] the data warehouse. Where's the software, huh?"

Focus on small systems

Pook said IBM's long-term large-systems plan is "terrific," but in the meantime, his focus is on installing applications on smaller, cheaper systems that would have previously been put on large systems.

IBM outlined its mainframe direction shortly before it announced the System/390 last year. The announcement included some initial functions to begin this move, including the first commercial dedicated processor, a cryptographic CPU for security, which began shipping in March.

Two other key pieces, Sysplex and Escon, were rolled out as well, but IBM will be shipping these functions in stages. Sysplex would enable users to string together multiple CPUs that would function as a single mainframe complex. Escon provides the fiber-optic channel architecture that would allow linking of processors and peripherals over long distances.

Like Vanderbilt, CSX Corp. is a large IBM shop with no plans to wait for IBM deliveries. "For the past two years, we've been working to have our complex of multiple mainframes appear as a single image," said Doug Underhill, a CSX vice president.

Underhill said the company has been able to build the foundation for this and will then bring in the IBM products, such as full-blown Sysplex functionality, as they become available. He said he expects the structure to mirror the large-systems complex IBM envisions, with the exception of many dedicated processors. To Underhill, many dedicated processors would restrict the ability to shift work loads from one CPU to the next.

The company standardized on 3090 600J processors in both the Ft. Lauderdale, Fla., and Baltimore data centers. The standard platform eases work-load issues, allowing jobs to be switched without consideration to a system's particular parameters. At each location, processors share disk drives instead of storage units being assigned to a particular mainframe.

Canadian Pacific has been moving its mainframes away from general-purpose work since "before IBM came up with this idea," said George Sekely, vice president of computers and communications. The firm has been moving operations to the desktop, leaving the mainframes with a server and storage role.

HDS unwraps two high-end Summit-class processors

BY JEAN S. BOZMAN
CW STAFF

SANTA CLARA, Calif. — Hitachi Data Systems, Inc. (HDS) announced two high-end processors last week — overshadowing last month's installation of its largest ever four-processor mainframe at Delta Air Lines [CW, June 24].

The news came just one or two months before IBM's first early-support shipments of its Summit-class mainframes — the Enterprise System/9000 Models 820, 860 and 900, are expected to take place, although the new HDS machines are not due until June of next year. The IBM machines are scheduled for general delivery in the fall.

The new HDS EX 520, a five-processor machine, and the EX 620, a six-processor machine, will be roughly comparable to IBM's highest powered Summit computers, said Bob Djurdjevic, president of Annex Research in Phoenix. The HDS 420, 520 and 620 now match IBM's offerings both in configuration and power, industry analysts said; all three HDS models are water-chilled machines. HDS has said it will support IBM's Escon fiber-optic channels by the third quarter of 1992 and will support IBM's Sysplex clustering feature by the fourth quarter of 1992.

Despite this apparent parity with IBM, HDS will not be able to match IBM's installation schedule. "Hitachi's high-end machines aren't shipping, so they're just as much a paper tiger as IBM's and Amdahl's high-end machines were when they were announced in September 1990," Djurdjevic said. "The difference is that the IBM and Amdahl paper tigers will become real animals in the next 30 to 60 days." The 520 and 620 are priced at $18.3 million and $21.5 million, respectively.

Given the relative performance of the new HDS machines compared with the older EX100 models, Djurdjevic estimated that the HDS 620 would run at 209 million instructions per second (MIPS), almost matching the high-end IBM Model 900. He also rated the IBM ES/9000 Model 820 at 150 MIPS, the Model 860 at 175 MIPS and the 900 at 210 MIPS.

Matching performance

According to Gartner Group, Inc., the HDS mainframes roughly match IBM in terms of raw performance, but HDS is likely to trail IBM slightly in an MVS/ESA environment.

HDS built the EX 520 and EX 620 on a 4-in. square "package" of Hitachi Ltd.'s ECL logic chips that has a clock time of roughly 8 nsec and a switching speed of 70 picoseconds. New types of ceramic materials draw heat away from the high-speed, high-temperature ECL chips. Analysts noted that each EX processing unit requires two special power units, taking up a lot of computer-room floor space.

At least one longtime HDS user admired the new products for their power but does not plan to upgrade from older systems just yet. "I've known about these machines for about a month," said Robert Feinstein, data center manager at Dialog Information Services, Inc., a Palo Alto, Calif., database provider that operates two EX 100s. "During prime-time processing, we're using over 80% of our CPU power, but we're not looking to move to an EX 420 until 1993."

Feinstein said he would prefer the EX 420 over the new water-cooled 520 and 620 models because he does not have water-chilling equipment. But, by the fourth quarter, users will have the option of cooling the EX 310, 420, 520 and 620 with a new water-to-air coolant system.

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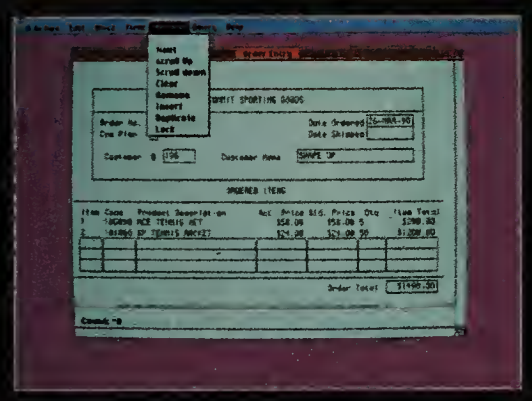

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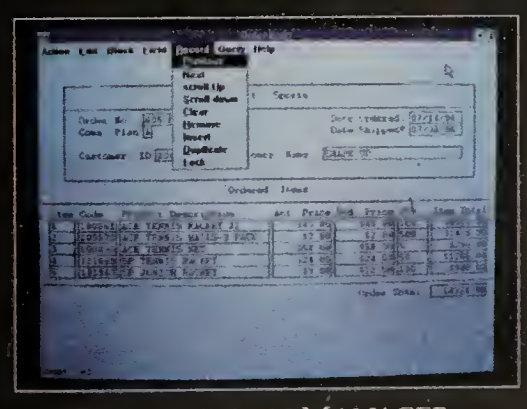

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High-tech firms shut down during holiday week

BY J. A. SAVAGE
CW STAFF

Taking a cue from the usual post-Christmas high-tech holiday, many computer companies in Silicon Valley and much of IBM in the Northeast suspended operations last week, sending thousands of employees on a forced — but in most cases paid — vacation.

IBM closed its headquarters facilities in New York, New Jersey and Connecticut as well as its Santa Teresa laboratory in San Jose, Calif. But the rest of the shutdowns appeared to be centered in Silicon Valley, with the likes of Amdahl Corp., Chips and Technologies, Inc., LSI Logic Corp., Mips Computer Systems, Inc. and Silicon Graphics, Inc. forcing employees to the barbecue by the thousands.

Companies said that the move was an accounting measure because the holiday week followed on the heels of a closing quarter. "Vacation time accrues as an expense, and, from an accounting perspective, it's fairly large," a Silicon Graphics spokeswoman said.

While the move is mainly a short-term measure to make the next quarter's bottom line less drastic, no one would venture to guess the savings on an industry-wide basis. Savings came not only from personnel but also from utilities that were not used while staff members were away from the facilities. "They're recognizing that every dollar helps," said Jeffrey Canin, a financial analyst at Montgomery Securities in San Francisco.

"It's an opportunity to save a little on the expense side while missing a week in which there's not a tremendous amount of productivity," Canin continued. "But if we start to see this happen in nonholiday weeks, then there's reason for concern."

Toshiba ups portable line

BY MICHAEL FITZGERALD
CW STAFF

IRVINE, Calif. — While Toshiba America Information Systems, Inc. is among the leading vendors of portable computers in the U.S. market, analysts said it has struggled in the notebook segment of the market.

The company plans to move to correct this today by introducing three new notebook computers — two that are based on Intel Corp.'s 80386SX microprocessor and one based on Intel's 80286 chip.

"They're filling in some serious holes in their product line," said Mark Levitt, an analyst at Framingham, Mass.-based International Data Corp. (IDC). According to IDC data, Toshiba has the largest market share in the U.S. portable arena. Levitt said the announcements will bring Toshiba back on par with Compaq Computer Corp. in the notebook arena.

Toshiba's new T2000SXE is based on Intel's 20-MHz SX chip and has 2M bytes of random-access memory and 40M-byte or 60M-byte hard drive options. Toshiba added a 60M-byte hard drive option to its T2000SX line, based on the 16-MHz SX chip. The firm also introduced the T2000, an 80286-based notebookwith 1M byte of RAM, expandable to 9M bytes, and a 40M-byte hard drive. All of the systems weigh 6.9 pounds and use a 3½-hour-life battery.

Levitt said Toshiba's pricing was probably high. Prices start at $3,149 for the T2000, ranging up to $4,499 for the T2000SXE. Compaq's LTE 386S/20 with a 60M-byte hard drive is priced at $4,799.

Will Fastie, editor of "The Fastie Report" in Baltimore, agreed that Toshiba's pricing would not turn heads. He pointed to competition from vendors such as AST Research, Inc. as giving Toshiba problems.

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DG addresses dwindling number of MV users

BY SALLY CUSACK
CW STAFF

WESTBORO, Mass. — Data General Corp. will demonstrate its commitment to its eroding base of MV midrange computer users this week with the rollout of three new proprietary MV systems.

The company will also announce an Apple Computer, Inc. Macintosh-to-MV connectivity product.

Scheduled to be formally announced tomorrow, the MV/5600 DC, the MV/9300 and the MV/9600 will incorporate an enhanced version of DG's CMOS microprocessor. Existing MV users can upgrade by swapping boards.

There are currently 45,000 MV installations worldwide, and analysts said that base is eroding at about 15% per year.

The 5600 and the 9600 clock in at 7 million instructions per second (MIPS), and the entry-level 9300 offers 3 MIPS of processing power. Analysts pointed out that the 9300 also provides a new price entry point for users into the rack-mount line of MV systems.

Sam Williams, vice president and chief financial officer at Wichita, Kan.-based Sullivan Higdon and Sink, Inc., said the advertising agency will be replacing an MV/2500 with an MV/5600. The deal was transacted through Admark, Inc., a DG value-added reseller.

An MV site for two years, the company was running accounting software from Admark on a DG desktop system prior to that, and the Admark software was vital to operations, Williams said.

"It was a difficult decision to move to MV . . . but we had a problem that needed to be solved today, not something that needed development," Williams said. He added that service and support from DG have been excellent, and the company may take advantage of the DG Aviion technology in three years.

Carolyn Griffin, senior analyst at International Data Corp., a market research firm in Framingham, Mass., said users can expect more MV systems from the vendor and speculated that DG would be offering a sixth-generation MV line sometime in 1993. "What users would like to see soon is redundant array of inexpensive disk technology available for the MV boxes, and I suspect such a product may be available within the next four to 10 months," Griffin said.

DG also introduced Openmac for MV/Family systems. The connectivity product will let Macintosh computers act as MV terminals and MVs act as print or file servers to the Macintosh systems.

DG has also enhanced its current Transmission Control Protocol/Internet Protcol (TCP/IP) offering. AOS/VS II TCP/IP 1.0 now supports Simple Network Management Protocol.

Board-level upgrades to the new MV systems are priced from $22,000, and the machines cost between $35,000 and $72,000. This is a 40% price and performance increase over their predecessors, the MV/5500 and 9500.

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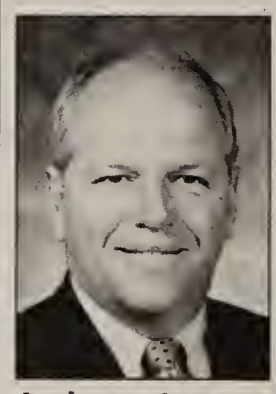
Andersen vs. the Manila volcano

BY ELLIS BOOKER
CW STAFF

An emergency procedures guide at Andersen Consulting's Advanced Systems Center in Manila deals with earthquakes, typhoons and "political instability" but until last month lacked a section on volcanic eruptions.



Andersen's Meier: *'We haven't lost a day'*

"I added a couple of pages just before I left," said John Meier, managing partner at Andersen's offshore development practice, who was at the company's Chicago headquarters last week.

Since mid-June, when Mt. Penatubo began erupting for the first time in more than 600 years, Manila has been coated with tons of volcanic ash. The white ash ranges in consistency from extremely fine sand to microscopic dust.

The Andersen center has continued to run smoothly, however, because of some commonsense rules to keep the dirt out.

- Employees have been required to wear clothes that can be cleaned frequently.
- Extra pairs of shoes are left at work and put on before entering the building.
- Guards on each of the center's four floors are instructed to keep dust-covered employees from entering.
- Air-conditioner filters are monitored.

According to Meier, the data center, with its IBM 4381 mainframe and two Application System/400s, has had no downtime, although an air-conditioning unit had to be replaced when ash hit the compressor and turned to muddy slush.

A more pressing concern, Meier said, were the 350 personal computers and local-area network servers in the building. "We've had a few head crashes, but we haven't lost a day," he said.

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Intel confirms FTC probe

Intel Corp. has formally acknowledged that it is being investigated for possible violations of federal antitrust laws. The microprocessor maker announced that it received a written inquiry from the Federal Trade Commission (FTC) on June 27.

A spokeswoman for the Santa Clara, Calif.-based firm said the FTC asked for documents pertaining to Intel's 4-year-old contract dispute with Advanced Micro Devices, Inc. (AMD). She said Intel executives "feel we've been quite meticulous in [guarding against] antitrust violations."

At least one of Intel's distributors has been contacted by the FTC regarding Intel's alleged coercion of businesses that sell competing chip products [CW, July 1]. The FTC would neither confirm nor deny reports of an inquiry.

The government is most likely looking into the possibility that Intel was a sole-source maker of 80386 microprocessors despite a contract with AMD signed in 1982 to share production eventually, said Dean McCarron, vice president of technology at In-Stat, Inc., a Scottsdale, Ariz., semiconductor market research firm.

Both companies are still in private arbitration, trying to determine which was responsible for breaking the contract.

AT&T sees tax-free merger

Pending approval, proxy will be sent to shareholders for vote

DAYTON, Ohio — NCR Corp. and AT&T announced last week that they had provided the Securities and Exchange Commission (SEC) with a preliminary proxy statement for review. If the SEC approves the document, it will be sent to NCR shareholders for perusal prior to an anticipated fall shareholders' meeting. Shareholders will vote at that time to make AT&T's purchase of NCR official.

AT&T also said it believed the SEC would allow it to treat the merger as a pooling of interests for accounting purposes. This would make the transaction tax-free for NCR shareholders. If the SEC does not allow pooling of interests, AT&T will proceed with a cash-and-stock deal.

Meanwhile, analysts said, AT&T and NCR seem to be moving effectively toward a merger.

"We've seen nothing unusual" that would spell danger, said Harvey Poppel, a partner at Broadview Associates, a Fort Lee, N.J.-based specialist in information technology mergers and acquisitions.

Portia Isaacson, an analyst at BIS Strategic Decisions in Norwell, Mass., said the merger effort seemed smooth, and NCR employee morale seemed high for the most part.

She added that AT&T appeared to be keeping its hands off of NCR, which analysts generally feel it must do to make the merger work. Isaacson said she thinks AT&T must force NCR to rethink its marketing efforts, though.

"[NCR] has a 21st-century product line with a 1960s marketing approach," Isaacson said.

Satellites safe from flares

BY ELLIS BOOKER
CW STAFF

Solar flares arcing hundreds of thousands of miles into space have made an impressive show for astronomers but have had little impact on satellite communications here on Earth, scientists at satellite companies said last month.

The recent solar activity is insignificant because of the way the earth satellites are positioned at the moment and because of standard error-correction protocols used in modern satellites, the scientists said.

Solar flares generate low-, medium- and high-energy particles, typically protons and electrons.

The energetic protons can penetrate the spaceship and, if they hit electronics such as memory chips, can cause "upsets."

"These are called single event upsets, and they can actually change what's in memory, causing the satellite to malfunction," said Andrew Meulenberg, a senior scientist at Communications Satellite Corp., the Washington, D.C.-based private company and a U.S. representative of Intelsat.

However, according to Meulenberg, satellite designers compensate by using "voting" electronics, which require multiple sources of information and conduct parity checks before executing commands.

More damaging are medium-energy protons, which can cause permanent damage to the satellite's solar panels by displacing the atoms in the solar cell, diminishing both its sensitivity to light and the electrical voltage it can produce.

In addition, low-energy particles drag the solar magnetic field with them and collide with the Earth's magnetic field. This can result in electrostatic shocks, lasting less than one microsecond, that can also upset electronics on-board.

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IS mess hinders drug war

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — A patchwork of more than 100 incompatible and sometimes conflicting information systems may hinder rather than help law enforcement in the war on drugs because none of the 33 federal agencies involved has overall responsibility.

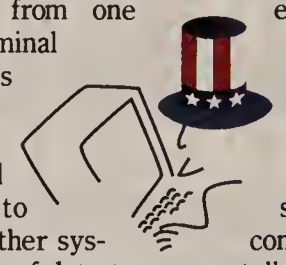
That is among the conclusions outlined in a report released last week by the U.S. General Accounting Office (GAO). The GAO also said the systems fail to give adequate protection to sensitive information.

In 1988, Congress established the Office of National Drug Control Policy (ONDCP) to oversee the drug control programs of 24 civilian and intelligence agencies and nine units of the U.S. Department of Defense. The ONDCP is addressing its concerns in preparation for a master plan for managing and sharing drug information, to be issued in December, according to the GAO. In the meantime, agencies are working on short-term improvements to their information systems, the GAO added.

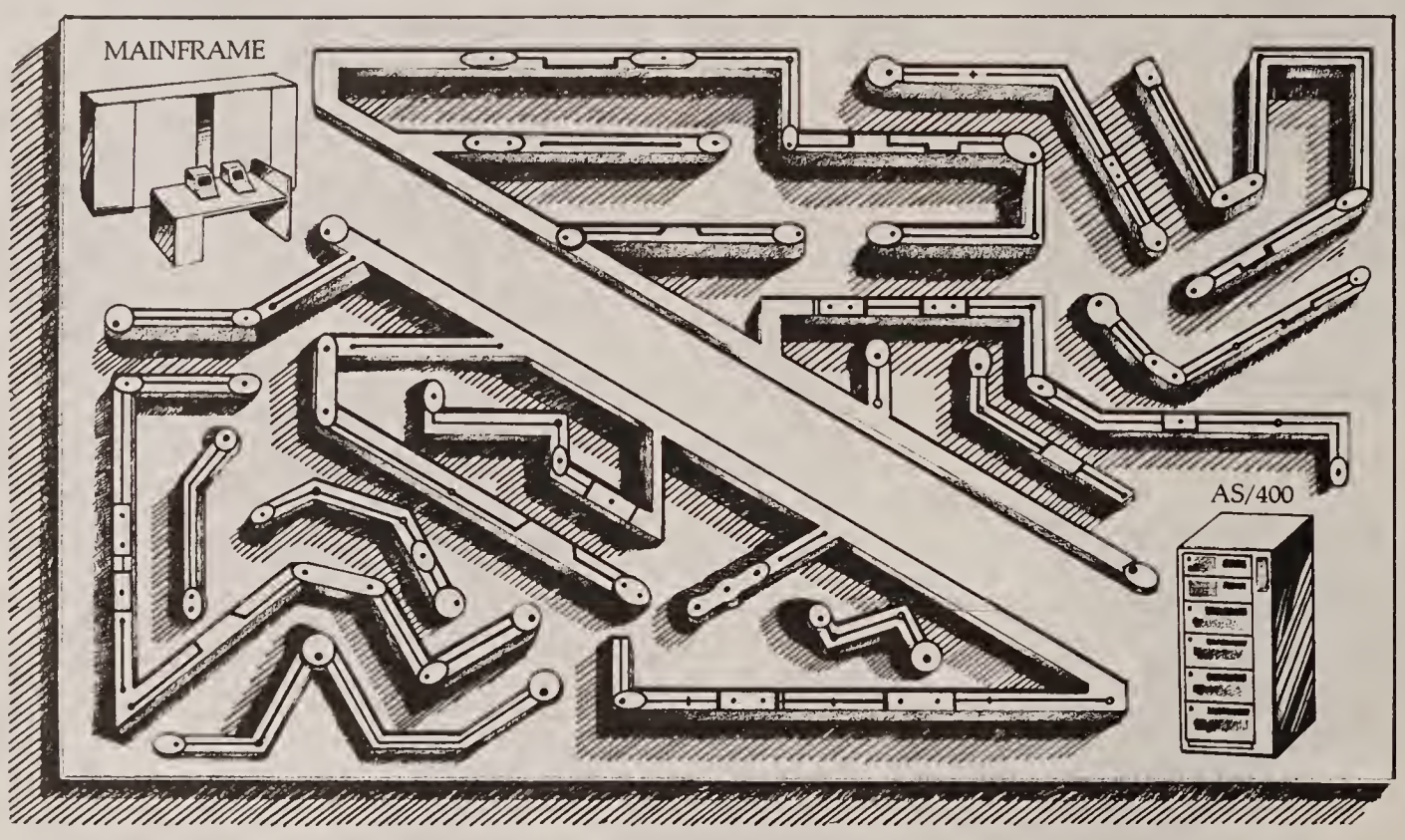
A spokeswoman for the ONDCP said the office was studying the report and would not comment until later this week.

The GAO said systems incompatibilities require agents at the Drug Enforcement Administration's El Paso, Texas, intelligence center to move from one single-function computer terminal to another in order to access separate databases in the course of their investigations. Similarly, a U.S. Coast Guard intelligence system is unable to accept automated data from other systems, requiring large amounts of data to be entered manually before it can be disseminated and analyzed.

The GAO said data integrity problems plague agencies involved in drug control. For example, a key system used by the U.S. Customs Service for detecting and tracking drug smugglers has design deficiencies that cause problems such as associating flight plans with the wrong aircraft and sending incorrect information to other law enforcement agencies.



Serious security weaknesses surround the use and sharing of sensitive drug information, the GAO said. For example, a Customs Service network was not secure for six months because contractors had improperly installed equipment. At the U.S. Department of Justice, "physical and operational controls over computer security were inadequate, contingency plans were not prepared or properly tested, and no computer security training was provided to employees," the GAO charged.



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10Base-T fits onto one chip

BY JOANIE M. WEXLER
CW STAFF

SANTA CLARA, Calif. — In the spirit of the $700 calculator that evolved into a bank account giveaway, the Ethernet adapter card is destined to become even more of a commodity when it sports a chip that National Semiconductor Corp. said it will announce next week.

The firm said it has integrated all 10Base-T functions on one piece of silicon for a 24% chip price reduction and a 400% power consumption decrease over its current three-chip offering.

10Base-T is the most recently sanctioned Ethernet standard. It was ratified in September 1990 to allow the 10M bit/sec. local-area network to run over unshielded twisted-pair wiring. In 1990, 1.5 million 10Base-T nodes shipped worldwide, compared with 1.3 million Ethernet nodes on all other media, according to Stamford, Conn.-based Gartner Group, Inc.'s Local Area Communications Market Data Division.

The effect of National Semiconductor's announcement on customers depends largely on how adapter card vendors implement the technology. However, "a higher degree of function integration means reduced cost, and people certainly want that," commented Paul Nikolich, a member of the IEEE 10Base-T standards committee.

A National Semiconductor spokeswoman said board makers Novell, Inc., Cabletron Systems, Inc. and Xircom, Inc. will indicate their plans for implementing the chip next week.

Currently, a 10Base-T card averages $50 to $60 more than its traditional thin coaxial cable counterpart, said Scott Haugdahl, a consultant at Architecture Technology Corp. in Minneapolis. He said 10Base-T cards cost up to $350.

"I think the power savings will translate into the biggest value, particularly for people running laptops and notebooks needing to conserve valuable battery power," Nikolich added.

10Base-T requires a physical star wiring configuration through an intelligent hub, and National Semiconductor announced a 10Base-T hub chip in March. Haugdahl said that without it, a 10Base-T hub connection costs about $100 more than a thin coaxial link.

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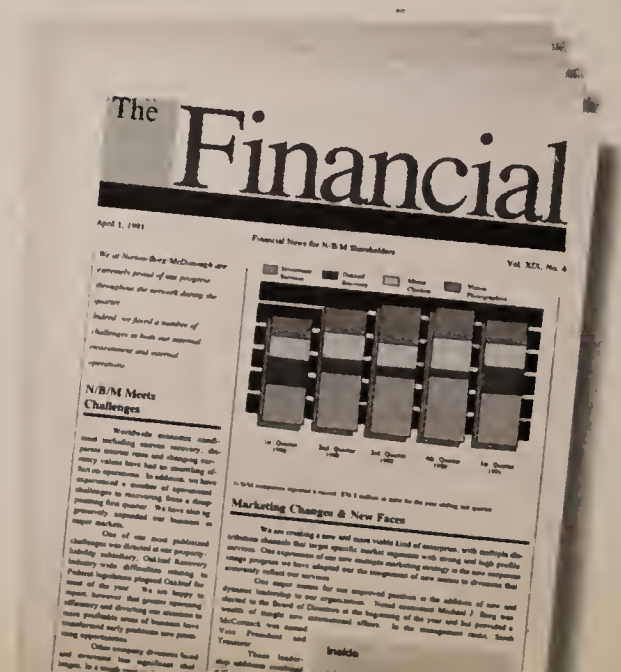

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ADVANCED TECHNOLOGY

TECH TALK

CD-ROM to go

■ Grid Systems Corp. recently introduced what it said is the first laptop computer to be equipped with a compact disc/read-only memory drive. The Gridcase 1550cd portable also features a 20-MHz Intel Corp. 80386SX microprocessor, a 60M-byte hard drive, 2M bytes of random-access memory and an IBM Video Graphics Array backlit LCD. The 17-pound laptop was designed for applications that require access to large databases, maps, charts and other documents that are typically contained in large manuals. The unit is priced at $6,590 for the standard configuration.

Fiber optics in limelight

■ Researchers at Rutgers University and Nippon Telegraph & Telephone Corp. reported a breakthrough in the way optical signals are amplified. The discovery could dramatically cut costs of fiber-optic systems, they said. The new amplifiers use specially designed fluoride glass fibers that have been treated with rare earth praseodymium. Researchers said the amplifiers were capable of boosting the signal from a communications laser by 1,000 times. The signal gain was also achieved at wavelengths of 1.3 microns, used for Fiber Distributed Data Interface networks.

Gassed up Wizard

■ Brooklyn Union Gas Co., a natural gas utility in New York, has developed a palm-size expert system computer for issuing credit payments.The system is built around the Sharp OZ-8200, an electronic organizer made by Sharp Electronics Corp. The application software, stored on an integrated circuit card, transforms the handheld unit into an inexpensive, dedicated expert system. The goal was to develop a portable computing platform for less than $500, a company systems analyst said. The utility's representatives use the system to draw up deferred payment agreements with customers.

American's expert system takes off

Knowledge-based expert system calculates mileage, helps airline battle the competition

BY MICHAEL ALEXANDER
CW STAFF

Last year, when United Airlines offered its frequent fliers a free round-trip pass in return for flying three round-trips from a hub city, rival American Airlines scrambled to counter with a better deal. American decided to offer its frequent fliers a free round-trip pass in return for flying three round-trips anywhere in the entire route network.

At first glance, that may seem like a pretty simple case of one-upmanship for which the airlines are so well known. However, competing on the basis of free passes for round-trips had never been done before by the airline industry.

Typically, airlines have based the calculation of frequent flier awards on number of segments, segment miles flown or specific hub (city) activity. A round-trip promotion was a new wrinkle in the frequent flyer game because of the complexity of determining what constitutes a round-trip.

American Airlines' Tennison *says the best solution to a frequent flier challenge from competing United Airlines turned out to be an expert system*

Tough to track

The problem with tracking round-trip journeys is that there are dozens of variables that make it difficult to determine when a frequent flier club member begins and ends a round-trip, according to Lynden Tennison, manager of knowledge systems at American Airlines.

The airline that could automate the process of verifying the who, when and where of frequent flying could expect to gain a slim but critical edge in the battle for the skies.

The solution turned out to be an expert system that could identify round-trips so they could be properly credited to club members.

Remarkably, the project, which was developed on a personal computer and ported to a mainframe, was turned around in only 15 weeks instead of the 11 to 12 months it would have taken to develop on a mainframe.

The knowledge-based systems group at American — one of but a handful of companies that has a dedicated development staff — already had experience developing a knowledge system for tracking a prior frequent flier promotion.

"We hoped to leverage some of the work that we had done, but that approach was not reusable, so we had to start from scratch," Tennison said. "The problem was that we found there were multiple views of what a round-trip is."

Defining a round-trip is not as simple as flying from point A to point B and back to point A.

"That's the generic view of a round-trip, but there are seven or eight discrete types of round-trips because of the hub and spoke system" — the system of routes among cities flown by airlines — according to Tennison.

The most difficult type of round-trip to follow is the "broken jaw," where one or more segments in the middle of a journey is missing.

For example, a customer may have switched airlines or completed a part of the trip by driving from one airport to another. The term comes from the appearance of an itinerary when it is drawn on a piece of paper.

Because this was a new business problem, the expertise on which to base the system's rules needed to be gathered and thoroughly tested. "We had to be consistent in applying our logic," Tennison said.

> THE AIRLINE THAT COULD AUTOMATE the process of verifying the who, when and where of frequent flying could expect to gain a slim but critical edge in the battle for the skies.

The knowledge systems group and the customer — American's advantage department — met frequently to validate and refine the knowledge that went into the system.

Ample processing time

The knowledge-based system had to be designed to process the records of 1 million freqent flier cardholders and, by inference, identify from among 10 million flight segments those that made up a round-trip. The processing time for a volume of 10 million records required mainframe power.

The goal was less than a 2% error rate, which would have generated 20,000 inquiry calls, more than what operations potentially would be capable of handling, Tennison explained.

"We never saw anywhere near that," Tennison said. "We received less than 1%."

The system was developed on a IBM Personal System/2 Model 80 PC and was ported directly to an IBM 3090 mainframe. The knowledge system was Inference Corp.'s ART-IM, short for Automated Reasoning Tool for Information Management.

"At the time we began the promotion, we did not have a mainframe knowledge-based tool," Tennison said. "We developed on the PC and in parallel went to Inference and brought in ART-IM for the mainframe."

The development cost for the project was $212,000.

Revenue roundup

The revenue implications for the program are difficult to calculate, an American Airlines spokesman said. "You would need to determine the revenue damage that would have occurred if the competitive offering had not been responded to."

American Airlines posted its best first-quarter revenue results in the company's history, and the number of segments flown during the qualifying period was more than 10% greater than had been forecast by the marketing department, the spokesman said.

The expert system was reused, with slight modification, for another frequent flier program this year.

The knowledge-based systems group has completed eight projects in the 5 years since its inception, according to Tennison. The largest of the projects was a maintenance and engineering application for routing aircraft to the proper location with specified time periods for required checkup and maintenance.

The group has also completed projects for daily management of the systems operations control center and cargo and fuel load planning.

The knowledge engineers are now working on a "hub slasher," a knowledge-based system that will help identify, during inclement weather, flight cancellation strategies that would have minimal impact on travelers.

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EDITORIAL

Uneasy alliance

If an 800-pound gorilla can sit anywhere it wants, where would an 800-pound gorilla and its 400-pound companion sit?

If the IBM/Apple alliance announced last week lives up to its potential, we'll soon find out. Pundits will debate the winners and losers in this mother of all alliances for months, but a few conclusions seem immediately apparent:

The industry power structure has changed. As our lead story described last week, the computer industry is undergoing a wrenching change that may completely redefine the market order during the next three to five years. What's out is the old concept of account control in which users were held hostage by their expensive proprietary systems. What's in is a new dynamic in which users are setting the agenda and telling their vendors to meet it — or else.

The IBM/Apple alliance would never have happened if the situation weren't desperate for both companies. The companies are longtime rivals. (Remember Apple's TV ad showing the blue-suited lemmings walking off a cliff?) The success of both firms is staked in proprietary systems. Each sees trouble in a future world in which interchangeable software and off-the-shelf hardware dominate. This alliance is the most dramatic evidence yet that the balance of power in the industry has irrevocably shifted.

Users have a lot to gain. Corporate buyers drove this process by demanding an end to split markets and closed architectures. But when the two biggest proprietary vendors in the PC business join forces, you can bet they're not looking to open things up. IBM and Apple have plenty of reasons to try to control the direction of the desktop market, but users have good reasons to make sure they don't. Users should continue to push IBM, Apple and others to conform to standards that the rest of the industry can work with.

Consortia are king. One of the consequences of the new market dynamics is that directions will no longer be set by single vendors but rather by groups of vendors. Formal consortia now exist in RISC hardware and Unix software, and informal alliances have formed around PC bus architectures, PC operating systems, multimedia standards and open networking. In almost all cases, these groups have split the market down the middle and lined up on opposing sides.

This isn't bad, just different. Not long ago, standards setting was merely a matter of waiting for IBM's stamp of approval. But in emerging markets where IBM doesn't hold a dominant share, the process is a good deal more dynamic. We will probably see a lot more of these groups in the future. They may confuse the issue, but at least they offer buyers a few options.

This will be a devil of a project to pull off. IBM/Apple is a marriage of necessity, and marriages of necessity are rarely happy. Culturally, the two companies couldn't be more different. There will be huge barriers to breach before IBM and Apple can write a line of code together. If they can't surmount them, then this deal will be a visible embarrassment for all concerned.

LETTERS TO THE EDITOR

More than money

In the article "Is technology worth it?" [CW, May 13], the interviewed insurance information systems executives place undue reliance on financial measures in gauging information technology's contribution to their firms.

However, many senior executives have come to realize that nonfinancial measures such as product quality, customer satisfaction and innovation often better indicate a firm's performance and growth prospects. As senior executives measure their firms' performance using nonfinancial measures, IS executives should do likewise.

IS executives should be measuring information technology relative to its contribution to the firm's business strategy of improving customer satisfaction. This might mean measuring information technology's contribution in improving policy retention rates, reducing the ratio of customer complaints per 1,000 customers, and the response time to insurance claims.

Mark Lee
Analyst
Valic
Houston, Texas

Variety in 4GLs

Regarding "No bones about it: We need software archaeologists" [CW, May 27], Mr. Fleming suggests that fourth-generation languages (4GL) SAS and Ramis are obscure, ancient and archaic. I have used Ramis for over 15 years, and I have never used an IBM data center that didn't have SAS. These 4GLs are extremely useful and productive products.

The industry needs to develop systems professionals that have a broad understanding of systems, programming and business. Systems professionals need to be able to adapt to something different when the situation arises. I doubt if Mr. Fleming was able to cost-justify the "few weeks" it took to rewrite the program in C just because he didn't know SNOBOL.

Mr. Fleming's concept of programmers who only know C and consultants who handle everything else seems very appealing. However, it will never happen.

Alan Leff
President
Alan Leff Associates, Inc.
Pittstown, N.J.

The privacy puzzle

Although I don't disagree with the points in your editorial, "Rights to privacy?" [CW, June 3], I think you may have wasted your ink.

Historically, private corporations and businesses have not been quick to step forward when asked to assist with their own regulation. However, they are quick to cry foul and lobby against any legislation that is developed without their advice and counsel.

The discussions and debates over the right to privacy and freedom of information have been going on for years, but the private sector has done virtually nothing to contribute to the protection of the public's right to privacy — not that the public sector has done any better.

The technology and its applications are far outpacing the necessary regulations. Unfortunately, the public seems to have little understanding of the apparent dangers and is far too willing to provide information via warrant cards, public opinion polls and other things that can be abused.

Ben Tarver
City of Concord
Concord, Calif.

Truly open?

"Olsen seeks lead role in open systems" [CW, June 3] states that Digial Equipment Corp. has "a strategic campaign aimed at shedding DEC's reputation as a proprietary vendor." Little mention is made of the fact that the reputation is a very well-deserved one.

I have grown tired of asking questions about products in their own catalogs that the sales force didn't know existed or mentioning something already in the press to get a surprised look or blank stare.

Yet, DEC would seem to have many miles to walk in these new shoes to prove itself as anything but a proprietary beast in open sheep clothing.

As with any new shoes, they will feel uncomfortable until broken in. Calling something "Open Advantage," and peppering news announcements with the word "open" does not make it so.

John Neubert
Drew University
Madison, N.J.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor In Chief,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail:* COMPUTERWORLD. *Please include a phone number for verification.*

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A national crisis in security

If Congress doesn't referee, the U.S. will lose lead in computer security

ROBERT P. CAMPBELL SR.

The U.S., which once had an overwhelming lead in the technology of securing computer and communications systems, is in danger of being relegated to a noncompetitive position in international markets. U.S. information security standards and technologies are being attacked as inadequate for use in international commerce.

The European Community (EC) has recently published its own proposed standards. Called the Information Technology Security Evaluation Criteria (ITSEC), these build upon the U.S. Trusted Computer System Evaluation Criteria (the "Orange Book") but address commercial integrity and availability, which the U.S. standards do not.

The EC is also developing an Information Technology Security Evaluation Methodology and is conducting a two-year pilot test. The UK has already defined a certification body and licensed two commercial evaluation centers for assessing compliance with the ITSEC.

European cooperation

The European process, called "harmonization," has rapidly brought together the interests of the UK, France, Germany and the Netherlands in this area.

That the U.S. has not been able to harmonize its national interests with those of the National Security Agency and National Institute for Science and Technology (NIST) during the past decade illustrates the depth of the problem and the urgent need for decisive action by Congress.

Our failure to reconcile these interests and produce a coherent set of guidelines in this area has produced a decade of unfocused, "free market" meandering.

The absence of an effective national policy has made commercial investment in information security technology extraordinarily risky, even for the largest vendors in the field. For the smaller, pioneering firms, failure has been virtually assured. This waste of precious national resources represents a "computer crime" of great proportions.

Dangerous pass

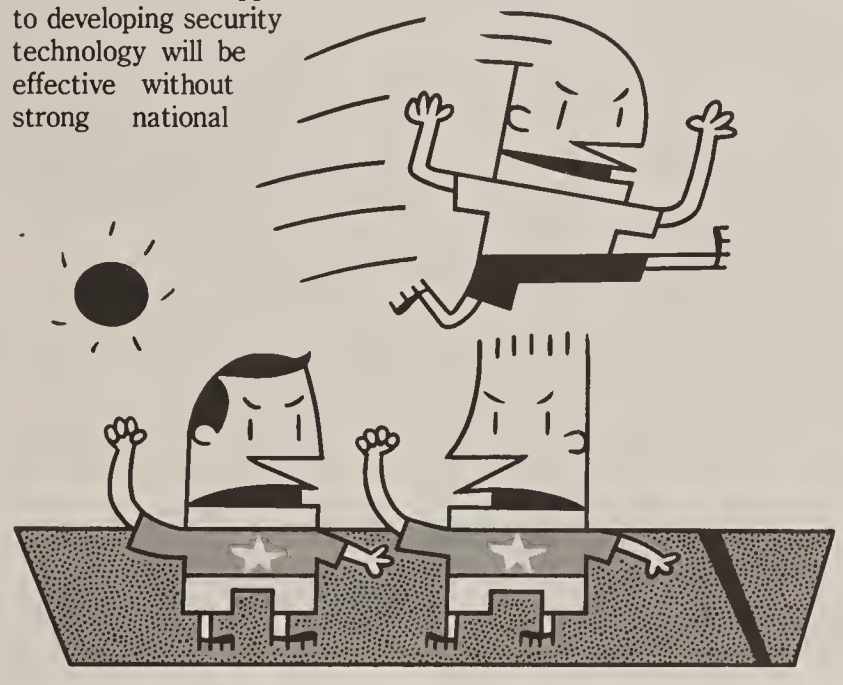
There is great danger that, with the EC initiative, Europe will become the major force in development of commercially reasonable security technology. In addition, there are strong indications that U.S. production of such technologies as public-key encryption, biometric identification techniques and token-based security is moving off-shore.

Lack of strong national leadership has brought us to this pass. For the past decade or more, U.S. information security efforts have been dominated by U.S. Department of Defense's (DOD) classified interests even though, outside of the federal government, it was widely realized that these efforts could not meet either U.S. or international business requirements.

Only the commercial sector — not the federal government — has an economic base sufficient to hasten the development of commercially viable and trustworthy technology. But instead of attempts to energize and stimulate the commercial sector, what we have seen are delays and obstacles. Some examples include the following:

- Failure to deal with issues of integrity and availability because of strict DOD focus on protecting classified information.
- Obstruction of legitimate sharing of technology because of impediments imposed in the hallowed name of national security.
- Neglect of other governmental and public interests. As the chartered representative of these interests, the NIST has been downscaled and sidelined.

It should be obvious that no "free market" approach to developing security technology will be effective without strong national leadership, especially in this kind of environment.



J. D. King

This leadership must come from Congress. The executive branch is too mired in political paralysis, vested interests and diverse agendas to provide the required leadership.

The recent National Research Council Report, "Computers at Risk: Safe Computing in the Information Age," made a strong call for congressional action. As one of its primary findings, the report recommends the establishment of an Information Security Foundation (ISF).

Coincidentally, in December 1980, I announced, on behalf of a group of concerned security professionals, efforts to establish a congressionally chartered Computer Security Research Foundation intended to provide a voice and a focus for commercial sector security needs. In 1984, I repeated that call during testimony before congressional hearings into computer and communications security.

While both efforts were unsuccessful, the need and concept are as relevant today as they were a decade ago. At least three groups have recently volunteered to "incubate" an ISF.

Congressional involvement must extend beyond simply establishing such an entity. Depending on volunteers with differing interests to carry out the necessary work without having strong leadership is a recipe for failure.

Two missions

There are two major purposes that must be accomplished. One is to bring together the diverse interests and needs of all concerned groups in order to advance the development of technical solutions that meet business, operational and social needs.

The second major goal involves stimulating commercialization of the more trustworthy, Defense Department-oriented technology through confirmation of a set of security standards and formal product conformance testing.

Anyone who has been involved in development of trustworthy technology under the aegis of the federal government's standards is currently confronted with the gut-wrenching prospect of seeing the economic payoff for those efforts disappear.

U.S. multinational firms, confronted with the the inability of U.S. technology to go with the international standards, may be forced to conform and leave U.S. technology behind. This would be the final blow to U.S. interests in this vital area.

Take action

Decisive action is already long overdue. Further delay to "study the matter" will waste precious time and result in the U.S. missing the boat.

The ISF concept offers a means to break the shackles and accelerate the cycle of change, but this will only happen if Congress takes an active role in reconciling competing interests and stimulating a rapid and effective response. Congress should take the following actions:

- Issue a congressional charter defining the objectives of an ISF and express its strong intent that the objectives of the ISF be resolutely pursued.
- Put enabling legislation into place that will provide tax credits, research grants and other incentives to organizations responding to the needs defined by the ISF.
- Provide seed money for the ISF to support its programs and attract a similar commitment from corporate sponsors.
- Identify other mechanisms that could be put into place to assure competitiveness of U.S. security technology in international markets.

Campbell is president of Advanced Information Management, Inc., a Woodbridge, Va.-based international computer and telecommunications security consulting firm.

The root of management technophobia is fear

READER'S PLATFORM

MICHAEL CLARK

Recent articles and letters published in *Computerworld* have shown an interesting trend in corporate attitudes toward technology — mainly technophobia. One opinion article commented on management's reluctance to hire anyone for an IS position with more than five years' experience. Another article stated that computer-aided software engineering (CASE) technology would take at least five years to move into corporate America.

I think there is a very obvious explanation for these phenomena — management's fear that its mistakes and inadequacies will be exposed. Let's look at the CASE issue.

Integrated CASE generally consists of four functional areas:

- Business analysis and modeling.
- Data analysis and modeling.
- Computer systems analysis and modeling.
- Code generation.

Of these four areas, data and computer systems analysis and modeling and code generation have been with us in various levels of sophistication for years. Indeed, code generators predate PCs in the IS area. However, CASE enhances these functions with the capability to produce a complete, mathematically precise computerized model of the corporate business structure, completely integrated with both the logical and physical data structures and computer systems that support it.

Staggering implications

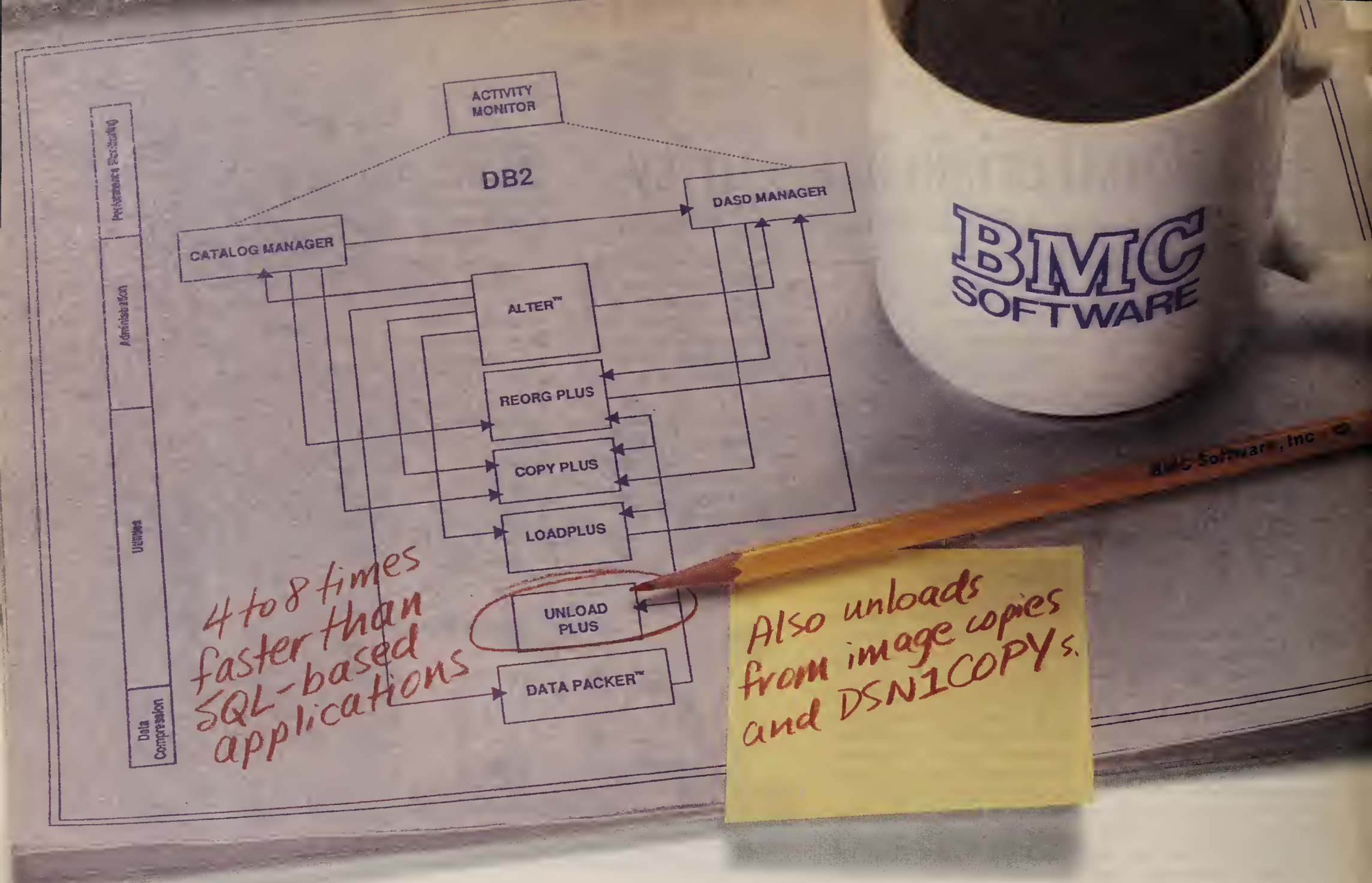
To corporate management, the implications of this model can be staggering.

Once the business is completely modeled, automated optimization programs can be instigated. While it is true that it will take years to develop the necessary heuristics and expert systems to fully automate the optimization of management based on the CASE model, certain standard optimization algorithms and redundancy identification could be implemented immediately. Redundant business processes and organizations would be identified and would, of course, become ideal candidates for elimination. Management policies and decisions could be checked by the IS department against the computer model, exposing many as erroneous and others as questionable.

In summary, bringing CASE into the corporate environment would mean that IS would have more empirical knowledge and understanding of the company than would be possible for any nontechnical manager. It would also be in command of any automated management functions.

Considering the past record of American corporate management, it is hardly surprising that managers have become resistant to the encroachment of this kind of technical expertise. Could they fail to consider such encroachment as a threat to their authority and to their very existence? A more important question, however, is whether we can afford such technophobia, when we are already losing ground to Europe and Japan.

Clark is a database systems and CASE methodology consultant in Indianapolis.



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COMMENTARY

Rosemary Hamilton

Traveled this road before?

History was repeating itself late last month when IBM announced its team of third-party software companies to help develop its Systemview architecture. Like the AD/Cycle introduction nearly two years ago, insiders, outsiders and IBM all had plenty to say. The initial result was confusion.

The Systemview team is made up of four software companies, including Bachman Information Systems, Inc., Candle Corp., Goal Systems International, Inc. and Platinum Technology, Inc. Boole & Babbage, Inc. has a separate development agreement with IBM concerning Systemview. Several other players in the systems software arena — such as Computer Associates International, Inc., Legent Corp. and Landmark Systems Corp. — are not on the team. Some say they could possibly join later; IBM has left this option open as well.

For customers of companies inside and outside the new Systemview group, it may be difficult to get clear answers as to what all this means.

There are many issues to take a look at.

First of all, if your software supplier is on the Systemview team, it will have certain advantages. However, if you are doing business with a software company not on the list, this is not cause for serious concern.

The Systemview team

Continued on page 33

VS conversion put to the test

Bank had mixed feelings about migration from Wang's VS to AS/400

BY SALLY CUSACK
CW STAFF

NEW YORK — When Wang Laboratories, Inc. recently announced plans to migrate proprietary VS minicomputer customers to IBM Application System/400 platforms, Bob Dekranes at Deutsche Bank AG had a good idea of what the process would involve.

Dekranes, manager of worldwide systems development for the bank's DB Trader software product, recently converted from a VS platform to an AS/400 machine at the bank's subsidiary office in Vienna.

DB Trader is a multicurrency investment banking software developed in-house under the Wang VS operating system.

"We originally picked Wang as an easy and reliable system for development," Dekranes said. "It is very user-friendly for the developer and very easy to code and test."

The entire conversion, including testing and migration of more than 800 programs and 3,000 screens, was accomplished in seven months. The only problem, according to Paragello, was the AS/400's drawbacks as a development machine.

The flip side

On the positive side is that the AS/400 is "an object-oriented machine," he said. "There aren't many development aids on the the AS/400 side, but the SQL access is terrific."

Deutsche Bank has approximately 1,200 branches around the globe and is ranked as one of the 10 largest commercial and investment banking institutions in the world.

The bank currently has VS systems running DB Trader in New York, Tokyo, Hong Kong and the UK. Dekranes and his staff did the conversion in Vienna at his firm's request — the AS/400 was installed and put into operation.

"There were a number of options open to us, and we took bids on various conversion software products before settling on one solution," said Ernie Paragello, a vice president at the bank.

The organization chose a Wang VS Cobol-to-IBM AS/400 Cobol conversion utility offered by Access to Information, Inc. in Glen Ellyn, Ill. The cross-compiler product uses the standard AS/400 command interface and allows an entire program library to be converted with a single command. Rewritten code appears in the same alignment as the original source code and all field and file names become extensions of the Wang field and file names.

Without Access to Information, the bank would not have been able to do the conversion in any reasonable period of time, Paragello said. "The operating system on the AS/400 created problems, and the compiler on the AS/400 had bugs. It was allowing a lot of syntax errors to go through."

A development drawback

Allowing that the IBM midrange had no problem running existing applications, Paragello said that it had certain drawbacks when used as a development machine.

"The AS/400 debugger is only usable for RPG — it has problems with Cobol, to put it mildly," he said, adding that Deutsche Bank was using older versions of the AS/400 and that he thinks IBM has addressed the problems in newer models.

In retrospect, Dekranes says he wishes Wang had elected to keep selling its machines.

Unix porting becomes a more viable option

BY JOHANNA AMBROSIO
CW STAFF

Although porting a mainframe application to a Unix platform can be tricky, the process is not overly difficult or beyond the capabilities of most information systems shops, claimed those who have been through the process.

Several conversion methods exist: using a compiler and tools to convert data from Cobol to C; rewriting some or all of the application; and moving the application to the Unix platform but leaving the data on the mainframe.

Which method is chosen depends on the size, age and complexity of the application and what the ultimate goal is.

Users said that converting an application from a mainframe to Unix brings several benefits. Among them are better price/performance, lower maintenance costs for hardware and software and the ability to use software that is already familiar to end users.

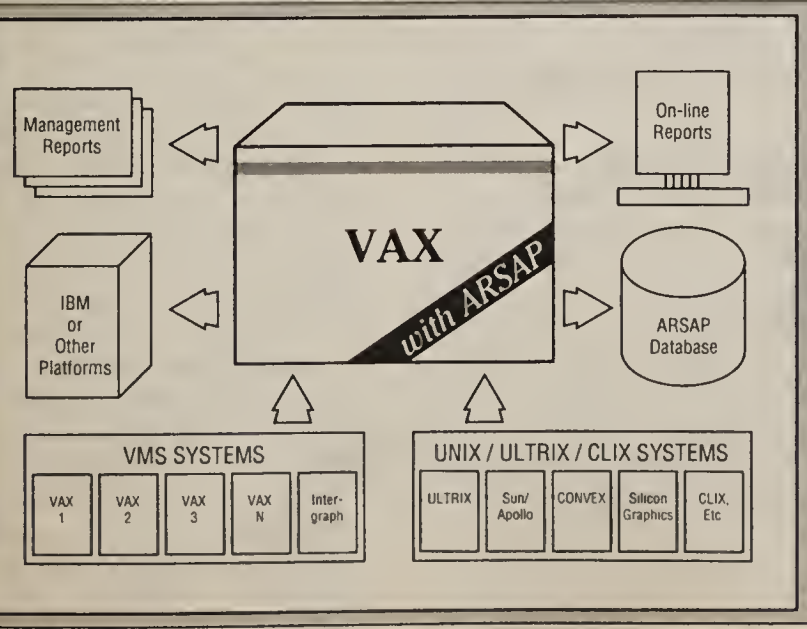
A Lebanon, N.H.-based outlet of The Burlington Coat Factory Warehouse Corp. has explored many options in moving at least six applications from its IBM mainframe to a Unix-based computer from Sequent Computer Systems, Inc. The applications include a merchandise inventory system described as the company's "crown jewels" by IS Director Michael Prince. That required a total redesign because "it was based on 1970s architecture," he said, and the company wanted to move to a relational database.

The company's most recent effort is a rules-based merchandise planning and allocation system converted by Unicorn Systems Co. in Los Angeles. The MVS application had not been used at Burlington Coat Factory previously, but it was the one that provided the desired functionality, Prince said.

That application is just now being rolled out, but Prince said it was a relatively smooth conversion process. "All the Cobol code translated; only a very small percentage of the code had to be touched." Prince's general advice is to first port the application to the new platform and then go back to optimize or redesign.

Compilers and tools to do the job are available from several sources: Unicorn; Micro Focus Inc. in Palo Alto, Calif.; and Visystems, Inc. in Dallas. In addition, both Unicorn and Visystems provide consulting and turnkey services.

Continued on page 32



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Early users praise Huron applications developer

Rules-based architecture of Amdahl's product serves to speed up final system delivery

BY JEAN S. BOZMAN
CW STAFF

Early reports on user experience with Amdahl Corp.'s Huron system — an environment that represents the mainframe maker's path to applications development — are drifting in, and the response has been positive.

A cadre of Huron users, including several beta-test sites, has had extensive experience with the product, including work with versions produced before the March Huron introduction. American Express Co., for instance, has been using Huron for nearly two years to develop an MIS administrative system, and the University of Manitoba in Winnipeg has had the product in-house for more than five years as part of an Amdahl-sponsored research project.

Both sites reported that Huron's architecture, which uses rules instead of standard Cobol code and database tables to store data definitions, has speeded development. In that respect, Huron differs from the new generation of computer-aided software engineering tools designed to be used within IBM's AD/Cycle software-development architecture, users said.

Unique feature

What makes Huron unique, users said, is its ability to store all software components — the rules, the data attributes and the data itself — within the Huron database, called the Metastor. This design allows users to manipulate data and data definitions directly, without rewriting the entire program.

"You do not maintain source code at all," said Richard Smith, senior vice president at American Express' Worldwide Information Processing and Telecommunications Division. "If you want to make a change, Huron decompiles the rule and presents it back in its original source form to make the change. Once the changes are made, you're enhancing and expanding the application.

"Some people might call Huron a data dictionary or repository," explained Smith, who directs software development at American Express' Phoenix data processing center. "But the main value of Huron is that it allows you to develop an application function and to achieve the objective of that application in a much shorter time frame."

American Express has a team of three staff members who work on Huron full-time and several more who work on it part-time, Smith said. Training times for Huron were short, typically only a few days. One company project involves using Huron to build a production system that helps to manage the Phoenix data center, which houses more than 30 mainframes.

Smith said he feels that Huron's prototyping capabilities set it apart from most traditional applications development tools.

At the University of Manitoba, a small team of software developers has used Huron to create a traffic-ticket processing system and some administrative applications. So far, the university has put eight production Huron systems into place on an Amdahl 5870 mainframe. Some of these systems are still housed in the test portion of the Amdahl mainframe's Multiple Domain Facility segmented memory, separating them from other software systems.

The university hopes over time to move away from its traditional information architecture, based on Cobol and IBM's IMS, but reaching that goal will take many years, said Gerry Miller, director of computer services. "We are considering Huron to be one of our main development platforms, but not the only one, because that would be imprudent," Miller explained. "I'm not prepared at this point to say that Huron is the only way to go because it's too early in the life of the product to say that."

Using Huron has, indeed, paid off in reduced development time, Miller said. "What we have found is that Huron definitely offers significant productivity improvement by several orders of magnitude," he said. Smith noted that in the traditional cycle, the requirements have changed by the time a finished program emerges. "Huron becomes much more of an iterative development environment. If an end user doesn't like it, the screen can be changed, and the prototype becomes the production system," he added.

Movement to Unix

Miller said he believes that in time Huron may even cross over into the Unix software arena. Amdahl executives have also said several times that Huron will be ported to Unix.

A slow rollout is part of what Amdahl said is a plan to market Huron carefully, providing adequate support in each geographic area, according to Huron developer Helge Knudsen, a vice president of software development at Amdahl's Toronto offices. Accordingly, Huron is being shipped in only 10 U.S. cities and several locations in Europe, Knudsen said.

There are currently about 30 Huron users worldwide, including a cluster near Amdahl Canada's software laboratories in Toronto and another cluster of five sites in London, near Amdahl's UK headquarters. In coming weeks, Knudsen said, more Huron copies will be installed in France and Germany — as well as in other U.S. cities. Knudsen estimated that since 1986 more than 1,500 people have been trained to program with Huron.

Servers gain on minicomputers

U.S. shipments of Unix-based servers will surpass those of Unix minicomputers by 1995, according to a recent report. Users will increasingly choose networks of Unix personal computers over dumb terminals, the report said.

The report, called "The Truth About Unix," was issued by Forrester Research, Inc. in Cambridge, Mass. It predicted that servers will see a 30% growth rate during the next five years. By 1995, it continued, servers will have 20% of the U.S. market; minicomputers and other time-shared solutions will have 17%; and clients will have 64%. Comparable figures for 1990 are, respectively, 9%, 36% and 53%.

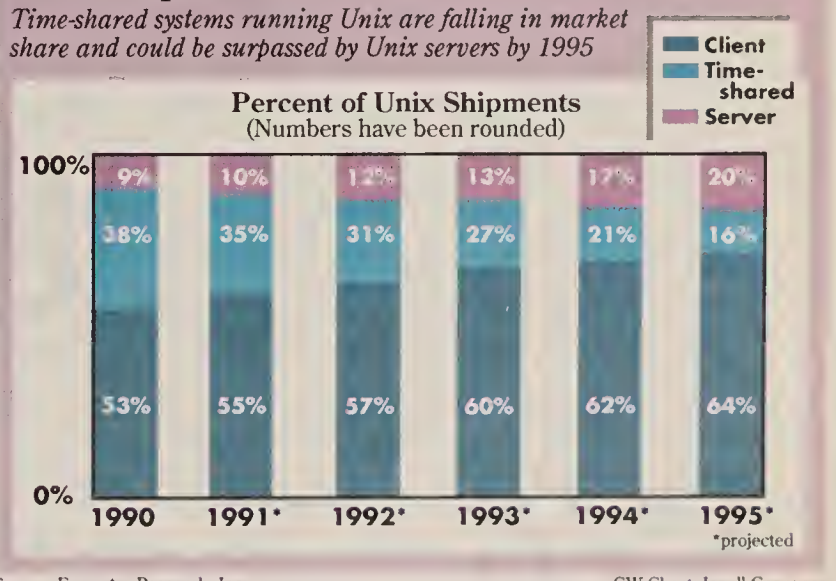
Reasons for change

Driving the transition to servers, the report said, will be the following factors:

- The need to supply high-level services to networks of Apple Computer, Inc. Macintoshes, Windows and Unix workstation clients. PCs just do not have the horsepower to be servers.
- Users do not need to deal with the complexities of learning Unix if Unix is confined to the server.
- As more applications are written for graphical environments, character-based applications on the large, shared machines will begin to look inferior.

Time's up

Time-shared systems running Unix are falling in market share and could be surpassed by Unix servers by 1995



Source: Forrester Research, Inc.

CW Chart: Janell Genovese

Amdahl moves to integrate diverse Unix applications

BY JEAN S. BOZMAN
CW STAFF

SUNNYVALE, Calif. — Amdahl Corp., which grew into a $2.1 billion firm by selling IBM-compatible mainframe computers, said that it will create enterprisewide file-management systems, blending its own Unix products with software and services provided by other firms.

Amdahl said these enterprisewide systems will use the Amdahl mainframes as an anchor or collection point for distributed Unix applications. William Ferone, vice president of Amdahl's Open Systems Operations group, said they will combine Amdahl hardware and software, along with consulting services from Amdahl or other firms, resulting in an integrated Unix application.

"It doesn't mean we're going to turn a system over to customers that will plug in and go," Ferone explained at a recent news conference. "We are going to integrate the base components of an open systems solution, and then the customer will have to add his application to it." If the customer needs consulting services, Amdahl will provide them, Ferone added.

In the process, Amdahl hopes to increase the open systems part of its business from 10% to 30% by 1994, Amdahl executives said.

Senior Amdahl managers described an open systems marketing plan in which products would start to be delivered late this year, followed by another wave of products in 1992. Among the key products are an Enterprise File Manager, a mainframe-based file server that tracks remote files; an Enterprise Database Manager, which coordinates data management across hardware platforms; and an Enterprise Document Manager, which will centrally store images. No specific description of these products — or their prices — were given.

Partners named

Amdahl named a number of strategic partners to help it succeed in its open systems venture. "We can't provide all these products and services ourselves, but neither can any other vendor," Ferone said. Amdahl has a small core of 35 people worldwide who can act as open systems consultants, but Ferone said more would be hired as the business expands.

Andersen Consulting in Chicago has agreed to help design Amdahl-based turnkey systems, Ferone said. Database vendors Oracle Corp., Informix Software, Inc. and Ask Computer Systems, Inc. will provide relational database products and software tools to aid in enterprisewide data integration. Discos, a San Diego-based division of General Atomics, Inc., will provide the mainframe-based Unitreefile manager to track remote Unix files.

Several other vendors will contribute image-handling products, including Plexus Software Corp. in Santa Clara, Calif.

Some analysts said the open systems initiative sounded too ambitious, even though Amdahl has been selling its own mainframe version of Unix, called UTS, for 10 years. However, they said, the overall strategy serves to liberate Amdahl from the confines of making mainframes that must run IBM systems software.

"Amdahl is doing something that is very much in line with industry trends by offering to package complex open systems products for the enterprise," said Judith Hurwitz, editor of the Boston-based "Unix in the Office" newsletter. "It's a logical thing for a company that has a mainframe-style product to do," she said. "It makes them look like they're selling large servers rather than mainframe dinosaurs."

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RS/6000 gets Unix OLTP monitor

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — IBM's RISC System/6000 got its first Unix-based on-line transaction processing (OLTP) monitor recently, thanks to the efforts of Unisys Corp. and AT&T subsidiaries.

AT&T's Tuxedo transaction monitor makes the RS/6000 a viable contender for Unix OLTP applications, said some observers, who predicted a $15 billion Unix OLTP market — 20% of the total OLTP market — by 1994.

The Tuxedo port was done by Ally Software, Inc., a wholly owned subsidiary of Unisys. Tuxedo is the property of Unix System Laboratories in Morristown, N.J., the AT&T subsidiary that markets Unix System V and related systems software.

"We're seeing the early adopters [of Unix OLTP] this year, but we think the market will explode in the 1992-1993 time frame," said Ally Vice President of Sales Scott Silk, whose company has a multifaceted agreement with AT&T. To date, however, only a handful of user companies have exchanged proprietary OLTP systems for Unix-based ones.

Historically a time-sharing operating system in which all transactions are allotted equal access to and time on the computer, Unix has until recently been considered ill-suited to the fluctuating processing demands of real-time systems. But transaction monitors and a variety of enhancements to Unix have made it better able to handle OLTP applications.

Unisys could benefit from the move by gaining better access to IBM-only sites, according to analysts. "It'll let Unisys hardware coexist with the RS/6000," said Stephen Skarlatos, director of development at Applied Information Sciences, Inc., a Landover, Md., firm specializing in client/server technology and OLTP.

Skarlatos noted that Unisys' Unix server line, the U 6000, has supported a version of Tuxedo since April, when Unisys announced its Open/OLTP package.

Around since 1983, Tuxedo has been implemented on some 20 hardware platforms and nine Unix implementations.

Meanwhile, IBM is backing a competing Unix OLTP monitor that it is developing with Pittsburgh-based Transarc Corp. Transarc said it hopes to unveil its monitor as well as a structured file server and peer-to-peer communications services for mainframe interoperability by the end of 1991. The Transarc monitor complies with the Open Software Foundation's Distributed Computing Environment standard, while Tuxedo complies with the X/Open Consortium Ltd.'s distributed transaction processing standard.

Tuxedo for the RS/6000 will run under AIX, IBM's Unix implementation, and will be available by the end of the month at a starting price of $1,500 per license.

Unix

CONTINUED FROM PAGE 27

Unicorn and Visystems sell CICS-like transaction processors.

Going through a conversion calls for more than just the products, however. Motorola, Inc.'s General Systems Sector in Arlington Heights, Ill., is about halfway through a conversion to a Motorola Delta 8000 system, scheduled to be completed by the end of this year. The application is a manufacturing system with some 62 DL1 databases, 500,000 lines of code and 800 programs.

"It's a mission-critical application," said Len Hofmann, manager of strategic manufacturing systems and development. The application is used in about 30 of Motorola's manufacturing plants, he said, and currently runs on IBM System 370 mainframes and 9370 midrange machines.

One internal sticking point was whether to buy a new application or move the existing one, Hofmann said. "I was responsible for developing the original application back in 1982, and I couldn't find anything in Unix or on the market that would provide the functionality." Plus, he said, it was important not to have to retrain end users.

The first phase — moving the application but not the data — took place from May 1990 to November 1990. For this, Motorola used Visystems' VIS/TP.

The second and final phase will be moving the data from DL1 to a relational Unix database from Sharebase Corp. and Teradata Corp. "We just found the tool in December 1990 to do this," Hofmann said. "We've been testing it and proving that it works." The tool is called Hirel, and it is from SWS Software Services, Inc., a Zug, Switzerland-based firm with a sales office in Orlando, Fla.

Some applications are clearly easier to port than others. A team from Chrysler Corp. in Highland Park, Mich., which has ported at least two applications during the past two years, presented a paper at the Unix Expo trade show in October 1990. In the paper, they noted that batch Cobol programs with embedded SQL are easier to port than those that require CICS. "It is also certainly easier to port Cobol programs which use VSAM files as opposed to DB2," the paper said.

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members have two major advantages over their competitors on the outside. Initially, they will be working with IBM to craft the Systemview architecture. As a result, one can assume that each will contribute ideas or technologies that reflect their product lines. However, the important point to remember here is that the team has not yet put this process to work, so it remains to be seen what exactly will emerge. Just because your particular vendor is on the team does not guarantee that its technologies will be transferred to the Systemview architecture.

For example, Candle and Goal are on the team. They also sell competing products. So, when it comes time to provide input to the Systemview architecture, will one company's suggestions be taken over the other's? Will they somehow be merged?

"When you look at the joint development opportunities, will there be overlap" between Candle and Goal? asked Sam Greenblatt, director of architecture design and planning at Candle. "I can't answer that."

The second big advantage for the Systemview insiders is access to specifications ahead of their competitors. Again, it can be assumed that they can incorporate the specifications into their product lines while the competitors are waiting for them to be published.

The importance of this advantage depends on how quickly you want to implement a Systemview environment. Some users may be in a rush, and for this group, the outsiders don't have much of an answer. But for users who intend to slowly move to Systemview — and IBM itself has stressed this will be a multiyear effort — the time advantage of the insiders may not be significant.

Insiders will point out a benefit of having IBM as a partner. Outsiders will say this could have drawbacks by confining a software company to the IBM way of doing business.

This comes down to a customer's needs. If you are an IBM shop and intend to stay that way, then a close alliance between your software supplier and IBM has an obvious comfort factor. If you have a multiplatform shop and are interested in other industry initiatives, then the IBM relationship carries less weight.

All of the players will be talking about Systemview conformance, and this term will no doubt be hyped by some companies in the near future. Remember all of those companies claiming to be AD/Cycle consistent or compatible when we weren't even sure what that meant? Beware of companies pushing the notion of Systemview compliance too heavily. At this early stage, there is very little to conform to anyway.

For now, the source best qualified to define this term is IBM. In a recent interview, Bob McNamara, a program manager in the Enterprise Systems Division of IBM, explained it this way:

First, Systemview conformance will evolve, so there is no such thing today as being "Systemview-compliant." Instead, third parties and IBM itself can conform to initial pieces of Systemview.

As of today, third parties can be compliant with the initial specifications of the end-user dimension of Systemview. This is one dimension only of a multidimensional architecture, and even this piece is not fully defined. Initial documentation, discussing four elements of conformance for the end-user dimension, was released earlier this year. McNamara said it includes the following: an IBM OS/2 platform; support of the IBM Common User Access graphical model; use of display objects as defined by the IBM Systems Application Architecture; and support of either IBM's Presentation Manager, Dialog Manager and Graphicsview 2 or Easel Corp.'s Easel.

So, if your vendor meets those four requirements as of today, then it is compliant with the initial specifications of the end-user dimension of Systemview.

Hamilton is a *Computerworld* senior editor, systems and software.

SOFTWARE SHORTS

Unix makes connection

Unix International has issued an application programming interface standard for developing Unix System V applications that comply with Open Systems Interconnect. Software developers can use it to create network interfaces.

Sixteen computer firms, based in Japan, along with Unix International, have drafted specifications for a **Japanese version of Unix System V.** It outlines standards for the base operating system, windowing system and graphical user interface, and it will be published in September.

Manufacturing companies will be able to buy **Xerox Corp.**'s Chess MRP-II software from both **Xerox Computer Services** and **NCR Corp.** The two companies said they will cooperatively market the package.

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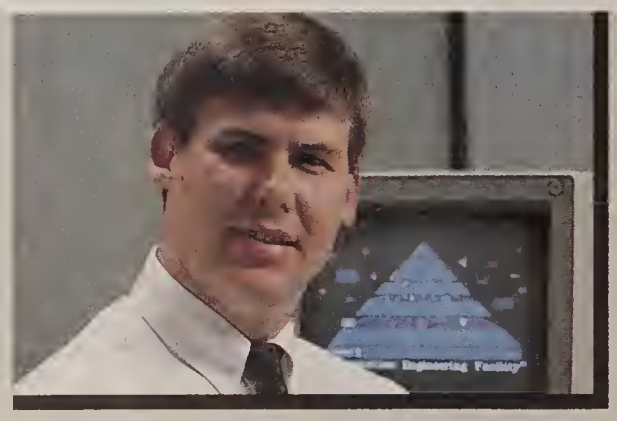

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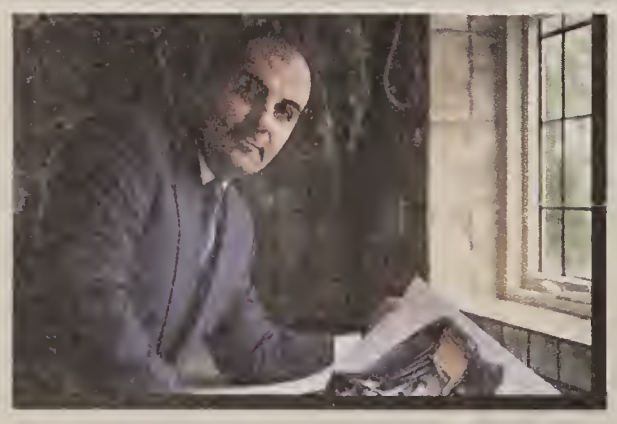

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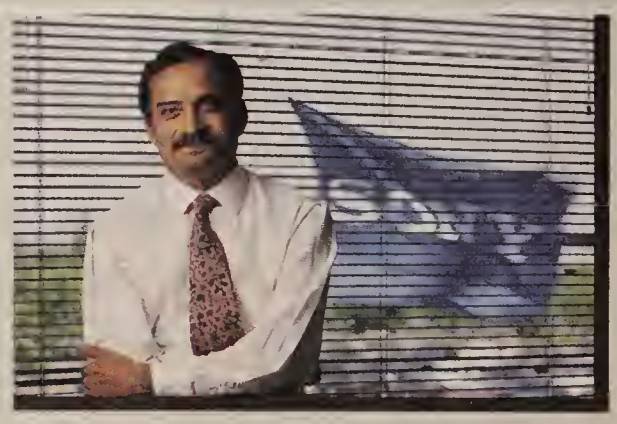

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In this same study, developers were asked to compare IEF maintenance productivity with their former methods. Of those responding, *more than 80 percent had experienced gains of from 2-to-1 to 10-to-1.* (See chart.)

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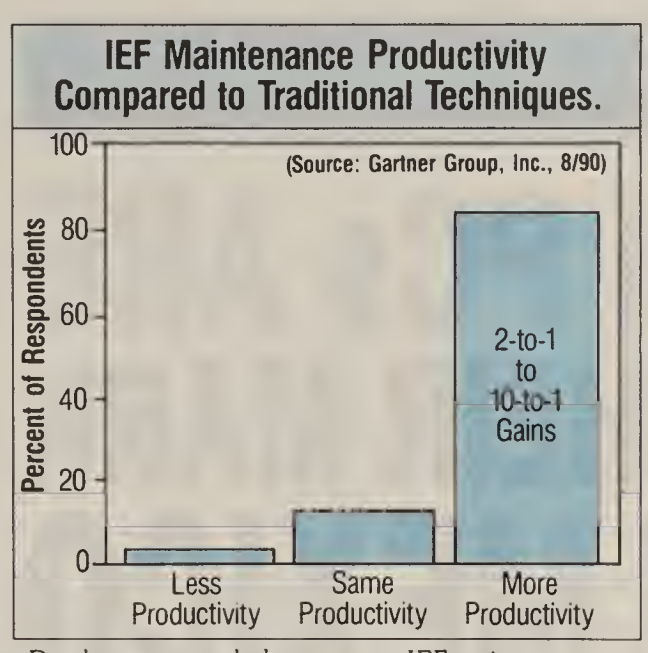

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66106

NEW PRODUCTS — HARDWARE

Storage devices

Tecmar has developed the Datavault tape systems ($4,995) with storage capacity of 2G bytes.

The digital audiotape systems offer 35-sec. average file access time. Features include a built-in head cleaner, hardware correction code and small computer systems interface support. Data Doubler, the firm's compression product, can be added to increase the effective capacity.

Tecmar
6225 Cochran Road
Solon, Ohio 44139
(216) 349-0600

Micro Technology, Inc. has designed the Virtual Lightning Library Series 50C and 81C, a pair of optical disc jukeboxes for real-time file archiving and retrieval.

The products offer 50G and 81G bytes of storage respectively.

Data is archived when the system's magnetic disk is full; all store-and-retrieve functions involving the jukebox are transparent to the user.

The 50C costs $162,000, and the 81C costs $220,000. The 50C can be field-upgraded to 81G-byte capacity for $90,000.

Micro Technology
5065 E. Hunter Ave.
Anaheim, Calif. 92807
(714) 970-0300

Power supplies

Lortec Power Systems, Inc. announced the Lortec Series 1000 line of small-footprint uninterruptible power systems.

The line includes models ranging from 3kVA to 15kVA. Low-end systems have a 13-in. by 30-in. footprint; high-end models measure 21 in. by 30 in. Optional features include an IBM Application System/400 interface port, an RS-232 port and extended runtime batteries.

Pricing for the line ranges from $5,000 to $13,800.

Lortec Power Systems
145 Keep Court
Elyria, Ohio 44035
(216) 327-5050

I/O devices

Dataproducts Corp. has introduced the LZR 2455 D high-volume duplex laser printer.

The product includes support for Adobe Systems, Inc.'s Postscript language and prints 24 page/min. It offers error-recovery capability in the event of a paper jam. Resolution is 300 dot/in., and 2M bytes of memory are included.

The LZR 2455 D costs $19,995. A simplex version with comparable output speed is also offered for $14,995.

Dataproducts
6200 Canoga Ave.
Woodland Hills, Calif. 91367
(818) 887-8000

HYUNDAI PCs ARE MAKING THEIR MARK IN NEW MEXICO.

IT'S A PLACE USED TO THINGS LASTING A LONG TIME.

The State of New Mexico's Division of Vocational Rehabilitation needed word processing, spreadsheet and database applications. And reliability.

After evaluating different systems for user preference, price and performance, they chose Hyundai.® Hyundai's 18-month warranty lasts much longer than those offered by other brands. And things that last count for a lot in the Southwest.

Hyundai has the broadest line of PC-compatible computers and peripherals available. From powerful desktop machines to the latest portables. All competitively priced and available from a first-class, nationwide network of dealers.

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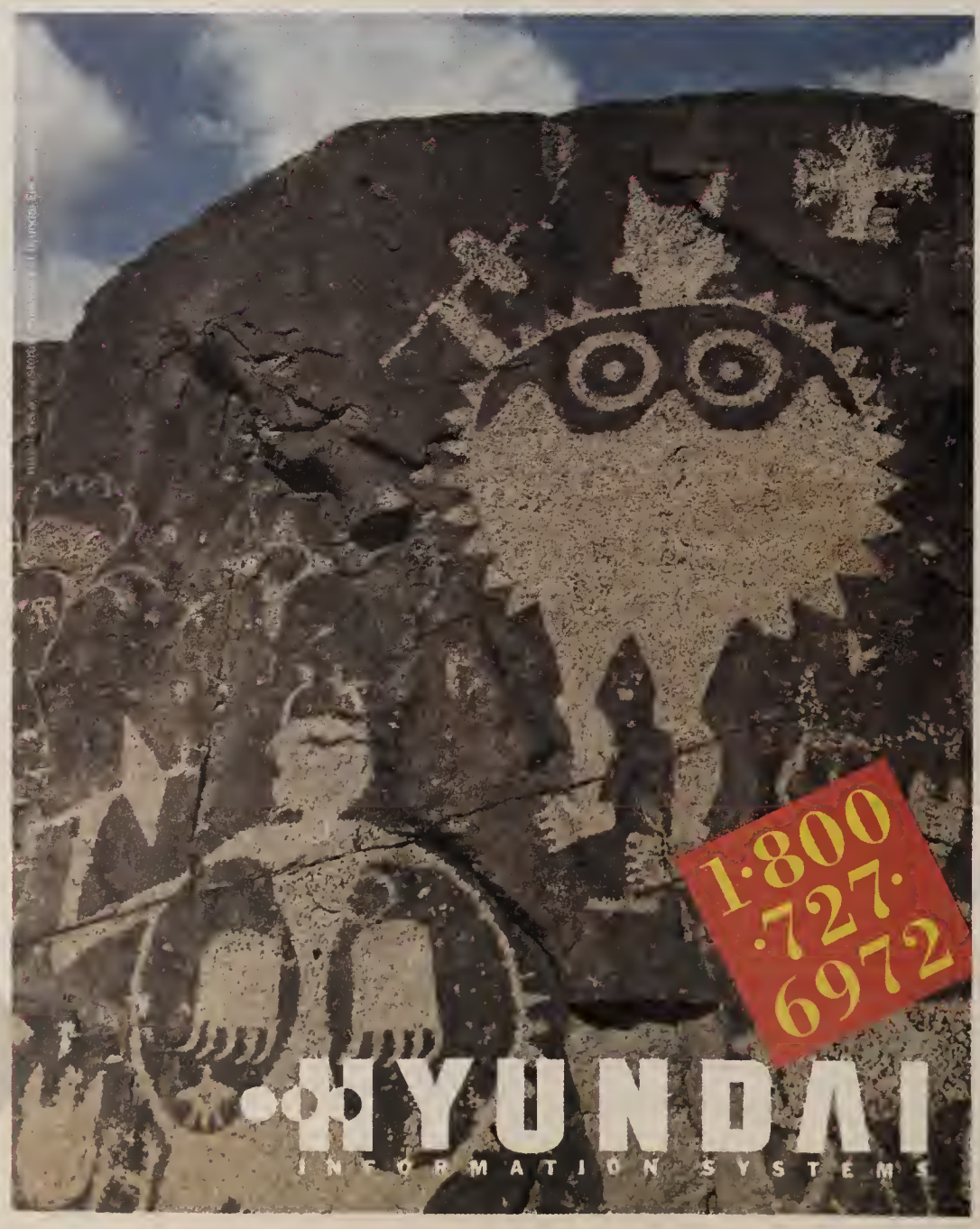


SOFTWARE

Development tools

Treehouse Software, Inc. has announced Dynamacs, a line of integrated software development tools for use with Software AG of North America, Inc.'s Natural 2.

The series includes four modules. Dynadoc automates documentation processes by using information from on-line Help text and comments in source code. Dynashell aids in developing applications prototypes. Dynamenu generates menus with variable user/function authorization. Dynagen maintains source-code quality.

Pricing for the complete set ranges from $40,000 to $96,000. Modules are available individually as well.

Treehouse Software
Suite 206
400 Broad St.
Sewickley, Pa. 15143
(412) 741-1677

Applications packages

Mitchell Humphrey & Co. has released an upgraded version of FMS-Fixed Assets for the Hewlett-Packard Co. HP 3000 workstation line.

Features added to the fixed asset software include asset depreciation calculation, retroactive adjustments with automatic recalculation and additional defaults for record and tax location. The company also offers General Ledger and other business and accounting software.

FMS-Fixed Assets costs from $20,000 to $40,000, depending on workstation model.

Mitchell Humphrey
11720 Borman Drive
St. Louis, Mo. 63146
(314) 991-2440

Pritsker Corp. has ported Factor, its finite capacity scheduling system, to the IBM Application System/400 platform.

Factor aids in accurate operations planning, according to the company, and provides enhanced modeling, error processing, output analysis and reporting functions on the AS/400.

Pricing for the complete application starts at approximately $30,000. Factor can be purchased on a modular basis, allowing users to customize the application, the company reported.

Pritsker
Suite 500
8910 Purdue Road
Indianapolis, Ind. 46268
(317) 879-1011

PC & WORKSTATION SHORTS

Microsoft ship sails

More than 100 independent software vendors have committed to producing applications that will run under Windows for Pens, according to **Microsoft Corp.**

In addition, the second beta-test release of the Windows for Pen software developer has already shipped out to more than 3,000 customer and developer sites, the company said. Windows for Pen, a set of extensions to Windows 3.0, is expected to ship by year's end, according to the vendor. Microsoft and its 21 OEMs will kick off end-user beta-test programs for Windows for Pen once pen-based hardware starts shipping.

Microsoft is offering a video entitled "Windows at Work." The first half of the video, which features Chairman Bill Gates, examines how Windows 3.0 is being used in the workplace. The second half provides a "preview demonstration" of the forthcoming Windows 3.1, including a look at object linking and embedding and Truetype font technology. Gates also explains plans to advance Windows technology.

User gains possible in IBM/Lotus deal

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

Users stand to gain from the recently announced alliance between IBM and Lotus Development Corp. on several levels, albeit primarily in the long term and mostly in the areas of improved messaging services and enterprisewide standards.

Mail appears to be the glue uniting IBM and Lotus in an agreement that nets Lotus IBM's vast distribution network and, in turn, provides IBM's office strategy with a needed boost via Lotus' Notes groupware and CC:Mail, Inc. packages.

Those technologies will help IBM target different users than Officevision LAN, such as laptop and work-group users, said Tony Mondello, programming systems director of IBM Office Systems Development.

The pact is widely viewed as the latest in a series of alliances designed in part to put some distance between IBM and its estranged development partner, Microsoft Corp. The alliance also coincides with two recent Borland International, Inc. commitments to port C++ and Objectvision to OS/2.

These couplings come on the heels of a recently publicized internal memo written by Microsoft Chairman Bill Gates that predicted a "fairly cold" relationship with IBM during the next 24 months.

"This alliance [between IBM and Lotus] will last because we share the same vision of the future," said Jim Manzi, Lotus'

Continued on page 43

Take note

Notes is group communications software that employs the client/server model to enable users to create, access and share information

Current release:

2.0 — Highlights include integration for remote laptop users, expanded imaging capabilities, automatic storage compression, application integration with Dynamic Data Exchange and Object Linking and Embedding protocols and enhanced security

Workstations:

OS/2 Presentation Manager and Windows clients. The company is working on an Apple Computer, Inc. Macintosh client

Servers:

OS/2 server. A Unix server is in the works

Networks:

Notes runs on networks from IBM, Novell, Inc., 3Com Corp. and Banyan Systems, Inc.

Pricing:

A minimum Notes order covers 200 nodes, including 10 servers, for $62,500. Smaller packages are available from designated resellers and Lotus business partners

Installed Base:

More than 75 organizations representing more than 35,000 nodes

CW Chart: Doreen St. John

Support-line crunch pushes users in-house

BY JAMES DALY
CW STAFF

Attorney Walter Healy was not having a good day. Midway through loading Claris Corp.'s Hypercard onto his system, he noticed a key component needed for the installation was missing from his application. Puzzled, he picked up the phone in his New York office and dialed the Claris technical support line. Busy. A second call was also met with a busy signal — as was a third, fourth and fifth.

Healy unsuccessfully tried to get through 15 times before finally trying an end run and calling Claris customer relations. Their suggestion: Fax in your question. "I find it particularly irritating to have to spend so much time and effort to get through to technical support on such a basic issue," he lamented.

Healy is hardly alone. Overloaded technical support lines at personal computer software companies have become a sore point in an industry that used to bank on the image that high technology was simple and foolproof. Confusing manuals, continual busy signals on support lines and callbacks that can sometimes take up to two days are common and frustrating, according to users — as well as vendors. "It is really embarrassing that people have to wait so long on the phone to talk with us about problems in our products," Microsoft Corp. Chairman Bill Gates said in a recent internal memo. "The number of customers who get a bad impression because of this must number in the millions worldwide."

One result is that users are looking for ways to snip the umbilical cord tying them to vendors and instead build up their in-house technical support services. "End-user self-sufficiency is the way things are going here," said Cozz Wilson, manager of technology services at TRW, Inc. in Cleveland. At TRW's corporate headquarters, Wilson has assigned more technical

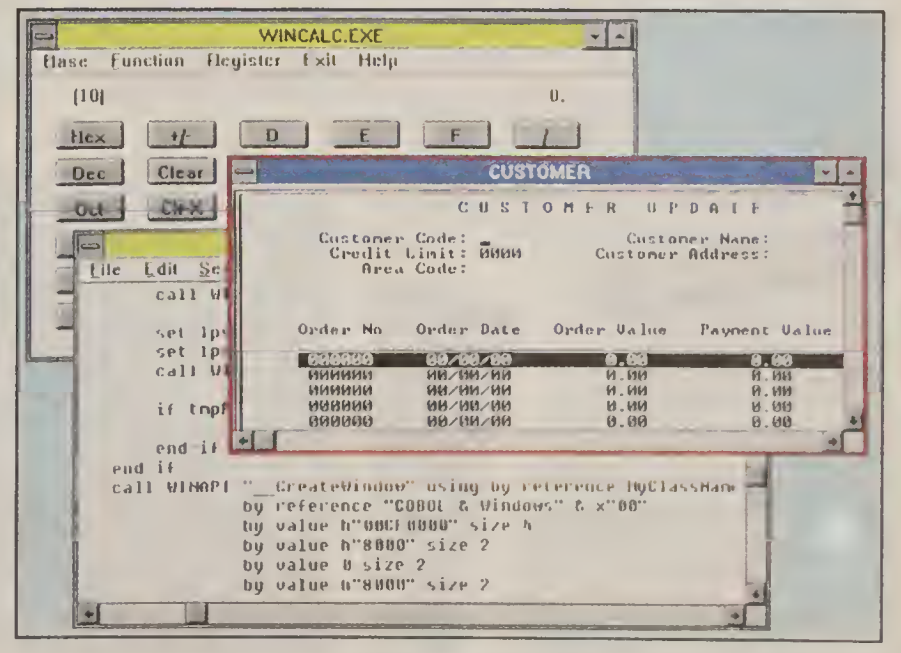
Continued on page 46

COBOL for Windows™ . . . *Get the Picture?*

The newly-released Micro Focus COBOL/2™ Version 2.5 now allows developers to write fully-functional Windows 3.0 applications with the standard WIndows API and the standard Windows development kit from Microsoft®. With Micro Focus COBOL/2 Version 2.5, existing character-based applications can be migrated immediately to the Windows 3.0 environment where they will utilize the Windows memory-management and windowing capabilities.

With Micro Focus COBOL/2 Version 2.5, COBOL programmers no longer need to be experts in C or Assembler in order to write applications that run under Windows. That means more business applications will have a user-friendly interface and the people who use those applications will become more productive.

Windows support is just one of the enhancements Micro Focus is offering COBOL developers in its 1991 product line. ***Call 800-872-6265 to learn more about the latest version of this comprehensive COBOL programming environment.***



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Windows provides gateway to database

California's largest center secures files from desktop systems dispersed throughout the state

ON SITE

BY JEAN S. BOZMAN
CW STAFF

SACRAMENTO, Calif. — The state government is putting Microsoft Corp. Windows 3.0 on networked desktops dispersed around the state. But all of the shared database files still reside here at a sprawling 105,000-sq-ft computer room known as the Teale Data Center, which handles processing for many state agencies.

Even as a first implementation of a new statewide system of Novell, Inc. networks is deployed within the state's Department of Veterans Affairs this summer, all of the data about veterans' mortgages, loans and health benefits will stay within these four walls.

"As we keep growing the environment and it gets more complex, we want to have a process in place that brings that distributed information in here," said Allen A. Smith, chief deputy director of the Teale Data Center.

"If you have 1,000 LANs, then you're depending on 1,000 different data administrators to back that data up."

A somewhat smaller number of local-area network administrators will, instead, focus on maintaining local software applications and local databases for use in their own offices.

"I think that this system is one of our early steps up the hill of two-tier computing," Smith said. "In a few years, I expect to see similar developments taking place in most of our state agencies."

Perhaps the most dramatic aspect of such two-tier computing applications is the shortened software development cycle, said Gilbert Tafoya, chief of data processing at the VA.

The department's experience is that such applications can be developed far more quickly and at less cost than standard mainframe applications. "We generated a savings of $300,000 in the first year of the project," he said. The VA project began less than one year ago.

Andy Freeberg

The VA's Tafoya (left) and Teale Data Center's Smith: *Moving the state's largest data center to two-tiered computing*

"We were able to move development work down to the [personal computer], where we weren't paying for computer time on the mainframe," Tafoya said. "And we were able to use the savings to buy PC hardware for the users." The experience will probably lead to a substantial reduction of Cobol programmers within the next few years.

The Teale Data Center is the primary computer operation for the entire state — other centers host law enforcement, taxation and health care systems, Smith said. The state has 30,000 terminals connected to five Teale Data Center mainframes: two IBM 3090s, two Hitachi Data Systems, Inc. EX100s and an Amdahl Corp. 5990.

The VA application, developed entirely with a fourth-generation language (4GL), links users around California with a single set of central database files stored in a Focus database from Information Builders, Inc. on the mainframe. There is an interface between the Focus database and a long-standing Natural database from Software AG of North America, Inc., Smith said.

A query system, developed using Information Builders' Focus 4GL, replaces one that was largely based on paper processing and subsequent data entry.

More secure

"Security is enhanced because paper is a lot more anonymous than someone logging on with a user ID and a password," said Kenneth Capps, an associate systems analyst with the state. "Any data that's entered into this system is checked against the 72,000 contracts we have on file in our mainframe system. That way, we avoid duplication and data-entry errors."

Despite their mainframe connection, end users are free to use Windows applications on their own PCs — and on their LANs — by cutting and pasting data from one window to another.

In the first phase of the VA project, some 300 Compaq Computer Corp. desktops will be placed on Novell LANs throughout California by January.

Merger tolls death knell for AT&T PCs

BY MICHAEL FITZGERALD
CW STAFF

Personal computers made by the AT&T Computer Systems Division were the clearest losers in the merger of the Computer Systems Division with NCR Corp.

Most observers correctly predicted that AT&T's line of Extended Industry Standard Architecture (EISA) machines, manufactured by Intel Corp., would get the ax in favor of NCR's Micro Channel Architecture (MCA)-based PCs.

While the two companies had virtually the same market share in PCs (less than 1%), AT&T had made successful calls on a number of large corporations, including American Airlines, Pan American World Airways and United Parcel Service of America, Inc. (UPS).

All of these companies do the bulk of their personal computing on AT&T PCs, which presents possible problems for the new corporate entity if it wants to keep this business.

But an NCR spokesman said current AT&T users have nothing to worry about.

"The commitments AT&T made will be honored," said Robert Farkas, an NCR spokesman.

Customers unfazed

Customers were largely unfazed, given NCR's assurances.

"It's over time, so we can continue on with our plans," said John Blackwell, corporate PC manager at UPS. UPS has between 8,000 and 10,000 AT&T PCs. The rest of its 25,000 PCs worldwide are from IBM and NEC Corp. Blackwell added that the MCA vs. EISA question was "a concern, but not a big one," particularly since IBM issued its recent announcement of new PCs based on the AT/XT bus [CW, June 10].

The announcement does have a near-immediate impact on AT&T resellers. New machines from the combined entities will be NCR boxes. NCR did not give a date for this, but sources close to the company said it could be any day.

WANTED: MVS and COBOL Programmers to test an ISPF/PDF-style text editor for OS/2

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SPF/2's 3270 compatibility also contributes to your ease-of-use on the PC. **SPF/2** processes keystrokes in the same way as the OS/2 Extended Edition 3270 emulator, including NEW-LINE and ENTER. **SPF/2** even displays the same status indicators.

SPF/2 has features not available on the mainframe. For example, **SPF/2** supports 48 PF keys, automatically adapts to the various OS/2 video modes (full-screen or text-window), and scrolls the file as you move the cursor. In addition, **SPF/2** has virtually instantaneous response time, 100% system availability, and no connect-time charges.

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Displaywrite 5: Falling behind the times?

IBM's Displaywrite 5

Reviews	Performance	Ease of use	Editing capability	Printer support	Network support	Documentation	Service and support	Value	Score
Infoworld 1/7/91	Good	Satisfactory	Satisfactory	Satisfactory	Poor	Satisfactory	Satisfactory	Poor	4.7*
PC Magazine 12/11/90	NC	Awkward	Obscure commands	Minimal	NC	Missing some information	Helpful	Useful for IBM users	Will wait for next version
*PC Week*** 8/22/90	NC	Not intuitive	Buyers disappointed	Behind the competition	Doesn't shine	Doesn't make the grade	Trouble getting answers	Wordperfect is better value	Scored lower than competitors
Users									
Barbara Harvey, Vanguard Furniture Co.	▄▖	▀▀	▌	▄▖	NC	▄▖	NC	▄▖	One of best two
Janet Ziegler, Kansas City Visitors Bureau	▄▖	▄▖	▄▖	▌	NC	▌	▄▖	▄▖	Wonderful compared with S/36
Anna Lapanne, Spaulding Composites Co.	▄▖	▌	▄▖	▄▖	NC	▄▖	NC	▄▖	Some love it, some curse it
Analysts									
Jerry Caron, Faulkner Microcomputer Reports	▄▖	▌	▀▀	▀▀	▀▀	▄▖	▄▖	▌	No threat to market leaders
Oliver Picher, Datapro Research Group	▄▖	▌	▌	▄▖	▄▖	▄▖	▌	▌	Money better spent elsewhere
Ronni Marshak, Office Computing Report	NC	▄▖	▄▖	NC	NC	NC	NC	▌	Nice but basic

Key: ▀▀ Very good ▄▖ Good ▌ Fair ■ Poor

Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone surveys.
**Infoworld* score based on 1-to-10 ratings. NC: No comment ***PC Week* reviewed OS/2 version. Based on user survey.

Technology Analysis — a roundup of expert opinions about new products. Summary written by New Products Writer Derek Slater.

Time marches on, leaving Displaywrite behind. Other word processors have moved beyond IBM's entry, with more powerful features and intuitive operations. While Displaywrite 5 handles routine office documents adequately and has some unique features, reviewers found page layout tools clumsy, advanced editing capabilities weak and network support negligible.

Performance: Displaywrite 5 earned solid scores in performance tests, according to *Infoworld*, whose reviewers noted particularly strong printing speeds. Although it finished behind leading character-based packages, its general performance level is adequate, reviewers said.

Ease of use: Neither of the product's two interfaces went over well with reviewers. Both the function-key method and the command line method of directing Displaywrite's activities use obscure commands, *PC Magazine* noted. For example, in moving the cursor to a new word, screen or page, the arrow keys are used; however, a CTRL-key combination is needed to move to a new paragraph, and skipping to the beginning or end of a file must be accomplished via the F6 search menu.

Producing simple office documents and correspondence with Displaywrite is reasonably straightforward. Anything more complex becomes a chore, according to reviewers.

Editing capability: The editing features also suffer from significant shortcomings. Displaywrite lacks automatic repagination and columned cut-and-paste tools. The program cannot display the bottom of a page along with the top of the subsequent page. Although it does offer an excellent mail-merge facility and a spell checker, the latter does not check text in footnotes or page headings. Format codes appear on-screen as inscrutable ASCII symbols.

Page layout requires the additional Composer module, which *Infoworld* rated as "reasonably sophisticated" but awkward. Without Composer, Displaywrite has no style sheets.

Printer support: Reviewers said the program supports a good variety of printers. Adobe Systems, Inc.'s scalable Postscript fonts can be selected, but overall font support is somewhat limited. Composer is again required for all kerning and tracking tasks. Printing a document in the background while using Displaywrite for other tasks is a complicated maneuver.

Network support: Printer drivers and various other individual requirements can be set according to preference by networked users. However, there is no read access to files already open elsewhere.

Documentation: IBM's documentation comes in the form of nine thorough and well-written manuals, although reviewers criticized the indexes.

Service and support: Telephone support is toll-free and available from 8 a.m. to 6 p.m., Central Standard Time. Additional support via the Compuserve network is pending, according to *Infoworld*. The service quality earned mixed grades: *Infoworld* described staff service as "adequate" while *PC Magazine* found Displaywrite personnel courteous and competent.

Value: Displaywrite 5 costs $495; with the addition of the Composer module, the price rises to $595. Reviewers said there are much better values on the market for all but the most dedicated Displaywrite offices with minimal layout requirements.

Analysts said IBM's forthcoming signature package differs markedly from Displaywrite. "Although there's a large installed base, it's not automatic that users will migrate to Signature," analyst Ronni Marshak said.

Vendor financial ratings

Analysts	Long-term stability	Short-term performance	Outlook
Craig Kraff, Edward D. Jones & Co.	▄▖	■	Tough market
Wendy Abramowitz, Argus Research Corp.	▌	■	Poor

After posting a $1.7 billion loss — partially because of a restructuring charge — in the first quarter of 1991, IBM suggested recently that the second quarter will not be very strong. Prudential Securities, Inc. estimates second-quarter net income of $130 million

"EVERYTHING IS VERY accessible. I'm not saying Displaywrite is the most wonderful package in the world, but a beginner can sit down with it and become productive within an hour."

Janet Ziegler
Administrative Director
Greater Kansas City
Convention and Visitors Bureau

IBM responds

Comments from Frank Petrini, product development manager, and Thomas Fornoff, marketing manager:

Ease of use: Our research has shown Displaywrite to be as easy to learn as any of the major DOS-based word processors. We do understand the need for a modern interface that works like the new Windows and Presentation Manager products. We are developing with Xyquest, Inc. our new strategic word processor, Signature. It will soon be available in DOS with subsequent versions for Windows and OS/2.

Editing capability: Displaywrite's strength has been in delivering sophisticated document composition and editing using a standard file format that is supported across the IBM platforms from personal computers up through Application System/400s and 370s.

Modification 3, released in May, provides increased printer support and ease-of-use enhancements such as in search/replace and installation. We will continue to support and enhance Displaywrite based on our customers' requirements.

NEXT WEEK

▶ Microsoft Corp.'s MS-DOS 5.0 is receiving accolades from reviewers, users and analysts. Memory enhancements, utilities and graphics support are among the reasons why.

Intersolv generator ups OS/2 LAN functions

BY CHRISTOPHER LINDQUIST
CW STAFF

Intersolv recently announced an APS series Cobol application generator designed to run under OS/2 and Presentation Manager. The generator is reportedly the first such product that supports concurrent user access on an OS/2 local-area network. It also takes advantage of the operating system's multitasking abilities, according to the company.

Paul Ratner, assistant vice president at Metropolitan Life Insurance Co. in New York, said his company is currently running DOS, OS/2 and mainframe versions of APS, but he added that he expects most of the DOS users to migrate to OS/2 in the near future.

"The multitasking capability — that you can do a generate in the background on a single machine — is a useful feature so you don't tie up a terminal while you're [running] some of the more CPU-intensive processing," he said. "Programmers can very easily take care of the multitasking, multiwindowing capabilities of OS/2," he added.

APS allows developers to create applications for DB2, IMS and VSAM. Versions of APS are available for IBM mainframes and for individual desktop personal computers running DOS or OS/2 or running on DOS or OS/2 LANs.

Developing on PCs

Kathy Harris, assistant director of the systems development division at First Union Corp., said her company will be using APS for OS/2 as a means of empowering developers who formerly had to develop strictly on a mainframe. Allowing developers to work on PCs will give them much more control of their response time and planning, she said.

First Union is automating the planning, analysis and design end of its development process. "The OS/2 products that are available for doing that fit very nicely with the APS product," which will allow programmers to do almost all of their development on a PC, Harris said.

First Union's choice is but one indication of a trend toward PC-based products in the applications development market. "The future of system development and code generation is on the PC for most people," said Stuart Woodring, director of software strategy research at Forrester Research, Inc. in Cambridge, Mass. "They don't want to use mainframe resources to generate code that can be generated on a PC."

APS for OS/2 is available as a free upgrade to licensees of the DOS version. APS is available for $9,500 per developer seat, regardless of platform.

IBM/Lotus

CONTINUED FROM PAGE 37

president and chief executive officer. Conversely, IBM and Microsoft mixed similar technical goals with widely differing agendas.

Users concerned about their OS/2 commitments, given the schism between IBM and Microsoft, may derive some comfort from the fact that the technology deals with Borland and Lotus are meant to assist IBM in its efforts to mature the OS/2 operating system and ease the development process.

In particular, Notes and OS/2 users can expect to reap the following from the IBM/Lotus pairing:

- Major improvements in messaging services, including a common mail engine slated for delivery in 1992 that will ease systems administration over the three platforms and allow programmers to develop mail-enabled applications that will run in all three environments.

Also planned are a common directory and mail application programming interfaces.

- Lotus will ensure that CC:Mail interfaces with IBM's Professional Office System and will eventually enable it to extract data from host systems, said Joseph Guglielmi, general manager of IBM Personal Systems.
- IBM is looking at making Notes' "unique" security capability compatible with IBM's RACF mainframe security package, Guglielmi said.
- Pieces of the Notes technology, such as replication of files across the network, will be packaged as extensions to OS/2, bundled in the form of new Extended Services packages. Where applicable, IBM may move some pieces — such as Notes' asynchronous support — into existing Extended Services such as Communications Manager, said Lee Reiswig, assistant general manager of programming for IBM Personal Systems.
- Notes and CC:Mail will be ported to the 32-bit OS/2 2.0.
- Support for Microsoft's Windows 3.0 clients. While running in native mode, a Windows client "will have the same function from an application sense as an OS/2 user on the Officevision LAN or local-area network," Mondello said.
- More direct access for Novell, Inc.'s Netware networks. Both the Windows and Netware support are already in "intense" early beta testing at a handful of customer sites, according to Mondello.
- A software developer's kit, slated for delivery in early 1992.

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Roundtrip: Calling all sources

Data consolidation tool collects and formats data from many packages

BY CHRISTOPHER LINDQUIST
CW STAFF

Collecting data from a variety of sources and putting it into the format users want can be a daunting task. However, some organizations have found the solution in the form of what they say is a robust data consolidation tool called CFO Roundtrip from CFO Reporting Systems in Woodinville, Wash.

While there are many products on the market that allow users simply to transfer data from one file format to another, users reported that Roundtrip goes far beyond mere file tranfers, offering such features as the ability to dynamically adapt to changes in input data without user intervention.

"It works terrific," said Michael Anton, vice president at Shearson Lehman Brothers, Inc. Anton uses Roundtrip in conjunction with Lotus Development Corp.'s Allways and 1-2-3 and Information Builders, Inc.'s Focus database to create a wide variety of formatted spreadsheets for analysis.

Users create a "pattern" spreadsheet that contains a model of the desired output, including formulas. This pattern is then used by Roundtrip to format the original data, either in 1-2-3 WK1, ASCII, Ashton-Tate Corp.'s Dbase DBF or Focus format into a WK1 spreadsheet.

Anton uses this technique to help keep managers to whom he sends reports happy. "These managers are used to getting nice, crisp Lotus-style reports from their analysts," he said. "We've been creating extracts off of our administrative systems, pumping them through Roundtrip, and these things come out crisp."

Count the uses

Mike Weinburger, staff assistant at the U.S. House of Representatives' Appropriations Committee, used Roundtrip not so much for its formatting but for its ability to locate and change specific data within a spreadsheet. Weinburger's department receives 13 bills annually with many line items per bill — each bill being transferred to a separate spreadsheet.

The department also receives annual extracts from the federal budget from the executive branch. These extracts must be used to update certain sections of the original spreadsheets. "We used Roundtrip to find the appropriate line in those 13 separate spreadsheets based on incoming data in an ASCII file," Weinburger said. Roundtrip saved having to write a custom program to do the job, he added.

"You buy it, you use it, you keep it," said Mike Westfall, a manager in the financial planning and administration department at Egghead Discount Software.

Westfall's firm has owned Roundtrip for two years and uses it as a bridge between Focus database files and 1-2-3 worksheets, he said. "We take last year's data and generate a budget, and then we create, using Roundtrip, about 120 Lotus worksheets," which are then distributed to store and district managers, he explained.

Roundtrip is not the type of product that receives, or requires, a lot of attention, he said.

Version 2.2 of CFO Roundtrip was recently announced. Single-user pricing is $495. Site-license prices begin at $3,000, with each additional end-user kit costing $60.

Tighter bead on desktop graphics by Micrografx

BY CAROL HILDEBRAND
CW STAFF

NEW YORK — Using PC Expo '91 as a springboard, Micrografx, Inc. made the upgrade on a pair of products, Charisma 2.1 and Picture Publisher, an image editor from newly acquired Astral Development Corp.

Chief among the improvements to Charisma, the company's Microsoft Corp. Windows-based presentation graphics program, is increased speed. Charisma is now five times faster at text redraw and gradient redraw and two to three times faster at initial text draw, the company said. Users, although pleased with the juiced-up version, were reserved.

"It varies," said Arthur Block, vice president of end-user automation support at the global bank at Manufacturers Hanover Trust Co. "On a 486, the new Charisma is faster but not dramatically so. When you get down to a 20-MHz 386SX, it's a minimum of twice as fast, and sometimes it's more."

Terry Jones, project leader for new applications development of The Boeing Co.'s 777 airplane project, said he noticed the speed improvements when the system redrew objects. "Our experience has shown that the redraw is much faster," he said. "It doesn't redraw everything you work on, only the part that has been changed."

Both agreed that the speed enhancements made using Charisma on a laptop more feasible. "It was very tenuous before. You had to wait a long time to get the pictures to draw. Now, it's a bit more plausible," Block said.

Jones said that he was pleased when he used a laptop to run a slide show. Memory improvements allowed him to go back to slides already shown.

Image refinements

Micrografx also filled out its desktop fold with a major upgrade of Picture Publisher, an image editor expected to be released this fall. The product handles photograph retouching and editing, as well as placement of art in text and layouts, product manager Frank Mazza said. Calibration improvements regulate scanner inconsistencies. Improvements in the color separation process ensure that "what you capture with the scanner is what you get out," Mazza said.

Picture Publisher will import images from stock photo libraries based on compact disc/read-only memory and a variety of other file formats. Originally priced at $695 as a stand-alone product, it will be bundled with a number of color scanners as a promotional draw, Mazza said.

Analysts called the Astral acquisition a shrewd one for Micrografx. "You've got to give the Graysons credit," said Jeffrey Tarter, editor of "Softletter," referring to the company's chief executive officer, J. Paul Grayson, and his brother.

"Micrografx is very strong, not just among casual presenters but among real art department users," he added. "To provide a tightly integrated tool for photographic editing seems to be a very nice fit."

Support

FROM PAGE 37

coordinators to each department to nurture the move to support independence.

While few but the largest firms are able to do all of their support completely in-house, many users have discovered myriad efficiencies when solving smaller problems within their own four walls. "Time is always the biggest factor," said Karen Eberhardt, director of training and development at the Help Desk Institute in Colorado Springs.

Some users also find that even when they do get through to vendor-provided support, they still wind up empty-handed. A complex information systems infrastructure configured from a variety of sources can present a daunting dilemma to even the most seasoned support person. "There are certain configuration problems that require a little [more] understanding than any on-line support service is able to offer," said Howard Sobel, executive director of the National Windows Users Group Network in Media, Pa. The result is to have the same people who installed the system also provide its technical support.

Luckily, vendors have begun to recognize the problems in customer support and are making amends.

"In an industry filled with products that are sometimes remarkably similar, many vendors are beginning to look to customer support as a way to differentiate their wares and stay ahead of the competition," said Bill Ablondi, a vice president at BIS Strategic Decisions, a research firm in Norwell, Mass. At Intuit, Inc. in Menlo Park, Calif., virtually every employee — including senior managers — is required to spend up to four hours every month handling technical support calls.

It is a huge fiscal concern that vendors keep support lines in top shape. "There is an untold amount of money lost every year on upgrade and add-on sales because users don't feel comfortable putting in new systems," Ablondi added.

Several major vendors are already trying to rectify that. Apple Computer, Inc., for instance, recently delivered two key System 7.0 support packages that should help take the early guesswork out of accommodating the new operating system: the Technical Coordinator Answerline and Software Development Answerline. Apple also provides 90 days of toll-free telephone support with the $99 Personal Upgrade edition and 180 days with the $349 Group Upgrade package. Microsoft has also beefed up its old one-size-fits-all Online support package with Support Advantage, a multi-tiered subscription service.

Those additions, however, will mean little to users who have lost nearly all of their confidence in vendor-provided on-line support. "I've learned that I need to figure a lot of things out for myself," Healy said. "It doesn't always work, and sometimes it even takes hours, but it's better than listening to a busy signal."

NEW PRODUCTS

Software utilities

Thumbscan, Inc. has released Softboot for Windows 3.0, a security utility package for Microsoft Corp.'s Windows environment. Softboot includes multilevel password-based protection and an optional physical access key that generates an optical password.

The product, which costs $250 plus $75 per access key, requires 46K bytes of random-access memory and 600K bytes of hard disk space.

Thumbscan
Suite 118C
1919 S. Highland Ave.
Lombard, Ill. 60148
(708) 932-8844

Systems

Sumex Corp. has announced an upgradable, modular personal computer system.

The Intrepid system consists of a base unit with module slots for the central processor, floppy and hard disk drives and various other options.

Available CPU modules are based on Intel Corp. chips and range from a 12-MHz 80286 model to a 33-MHz I486 model. All CPU modules include 2M bytes of random-access memory. The CPU module can be upgraded by any user, according to the company.

Five additional module slots are included for cache, video adapter, network cards, modem and disk drives.

A 33-MHz 80386 system with a Super VGA adapter costs $2,928. A 25-MHz I486 model costs $4,517.

Sumex
1305 E. Pacifico Ave.
Anaheim, Calif. 92805
(714) 935-2728

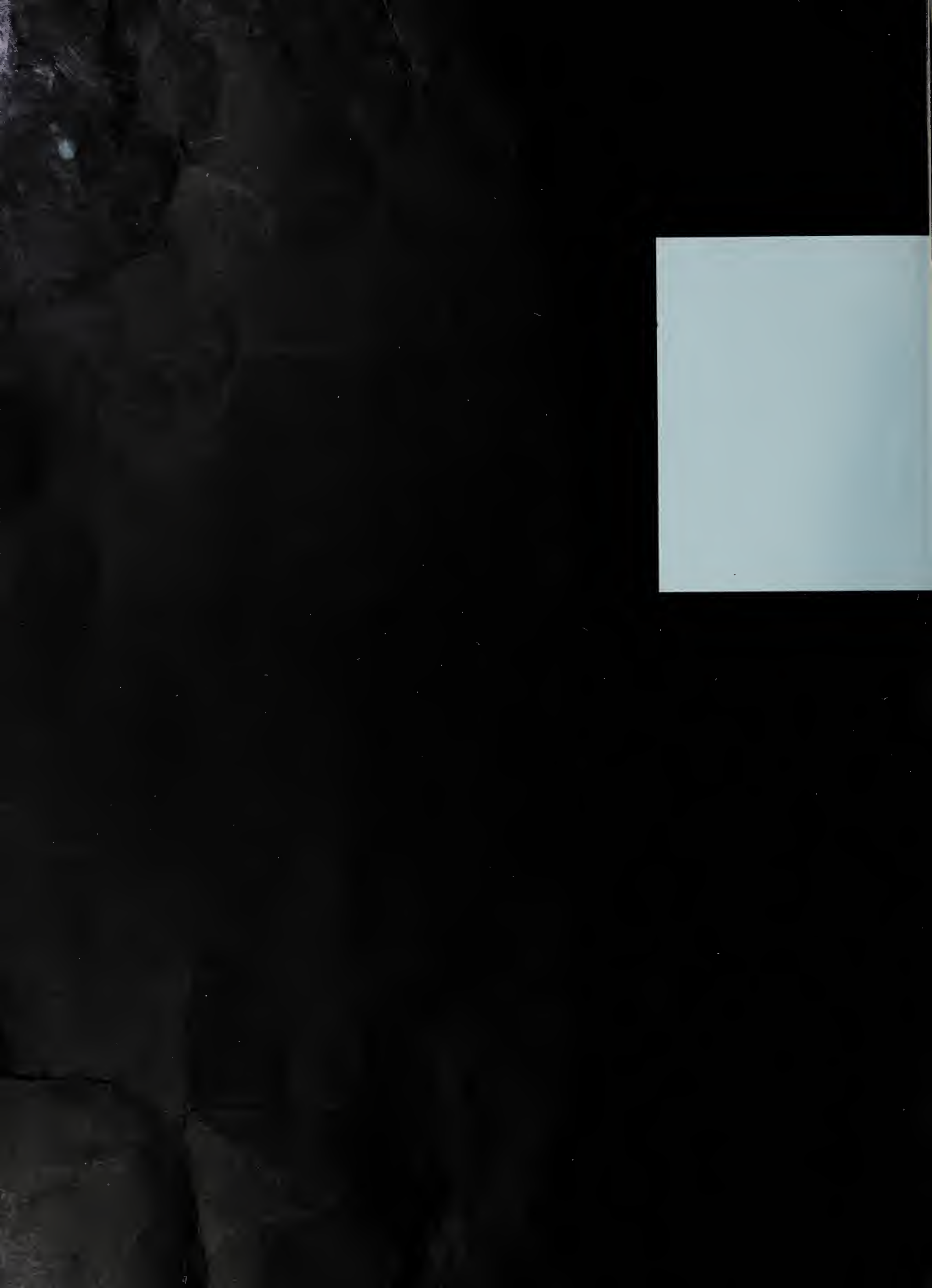
Training

Training for Nantucket Corp.'s Clipper 5.01 development environment has been announced by The DSW Group Ltd.

Introductory, intermediate and advanced courses are available each month at the firm's training facility. On-site instruction is also offered.

The introductory class costs $750 per person; the programming techniques course costs $650; and the advanced course costs $995.

The DSW Group
Suite 640
1775 The Exchange
Atlanta, Ga. 30339
(404) 953-0393



NETWORK SHORTS

Vitalink in DEC deal

Bridge/router maker **Vitalink Communications Corp.** said it will distribute a **Digital Equipment Corp.** Decmcc Access Module this month, allowing Vitalink local-area network internetworking products to be managed by a Decmcc enterprisewide network management station.

A $5 million marketing agreement between **Uniplex Integration Systems, Inc.** and **Sequent Computer Systems, Inc.** has the two vendors jointly marketing Uniplex Business Software as integrated office software on Sequent's Symmetry 2000 systems.

Synoptics Communications, Inc. has established a reseller agreement with **Siemens AG Telecommunication Cables** under which Siemens will sell Synoptics products.

An installation and repair agreement between LAN vendor **Racal Interlan, Inc.** and **Intel Corp.** means Intel can now provide on-site installation and repair services for all Racal Interlan equipment through its worldwide network of field service offices. Racal Interlan will be the one point of contact and responsibility, and Intel will provide same-day or next-day services.

Power plant has much riding on its LAN

ON SITE

BY JIM NASH
CW STAFF

SAN CLEMENTE, Calif. — Would you bet your life on a local-area network?

As computing evolves, critical applications are creeping from the mainframe to the personal computer network. Like the more timid swimmers who toe their way into the chilly ocean outside the San Onofre Nuclear Generation Station here, information systems executives are slowly getting used to having singularly important software running on networks.

Alan Levenson

San Onofre's Lawrence: *His department holds 'guarded confidence' in LAN*

Southern California Edison (SCE) operates San Onofre. While the company has yet to put a PC in the control room of the plant, a workstation is delivering network-based applications to an office right outside that room.

To be clear, no function of the plant is physically controlled by San Onofre's Novell, Inc. Netware Version 2 network. The system is, however, carrying documents that show the most updated procedures and parts to be used in the repair and maintenance of the station. If something goes down or breaks in the plant, it is often the PC network to which employees first turn.

Procedures and equipment for San Onofre's gigantic infrastructure are changed frequently when safety regulations are updated, according to Bill Lawrence, a computer applications engineer at San Onofre. "It is the starting point in doing any type of work on the plant," Lawrence explained.

More than 100,000 documents are stored on the document management system that is based on Textware Version 3.0 database software from Textware Corp. in Park City, Utah. Lawrence said the complete collection of scanned images resides on a Laser Magnetic Storage International optical jukebox. Frequently used images are downloaded to some of San Onofre's 46 application servers.

Continued on page 51

Library tests worldwide availability of images

BY ELISABETH HORWITT
CW STAFF

CHICAGO — The Library of International Relations (LIR) is making use of recent advances in computer-based image capture, image storage and networking technologies to preserve valuable, rare and old documents and publications and make them more accessible worldwide.

The LIR recently completed a pilot project to scan and electronically store the images of certain documents so they can then be transmitted on request to libraries, businesses and other institutions worldwide.

Some other institutions, such as Cornell University, have experimented with scanning and printing out old documents in order to preserve them, said Mickie Voges, the LIR's director of international library relations. Preservation is certainly one major purpose of the LIR's project. "We have the entire set of League of Nation documents; we want to scan them because they are falling apart," Voges said.

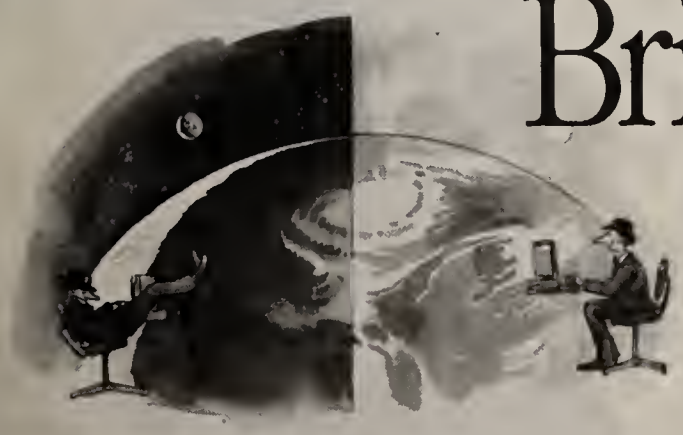
However, the concept of scanning and storing documents so that they can be electronically accessed and transmitted is comparatively new to the library industry, according to Voges.

Such a process will address the problem of increasingly scarce physical space to store books that many public and university libraries are facing now, Voges said. "Square footage overhead is high, and public libraries cannot pass bond issues to build new buildings," she added. "Tying scanning to other [computerized] tools allows me to make more information available without expanding on the physical side."

Perhaps the most exciting aspect of the LIR's project, however, is the tying of electronic storage to electronic networking so that anyone in the world can access and print out the images of documents residing here.

The library hopes to store its first collection — an international trade statistics database comprising 32,000 pages — in the next few weeks, according to Voges. The library hopes to have finished storing the next piece, approximately 400,000 pages of international treaties, by fall, she added.

Continued on page 56



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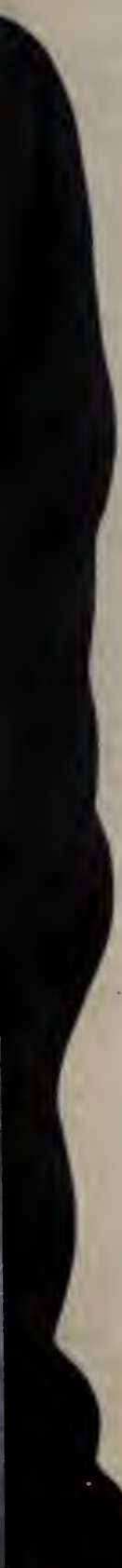
Metropolitan Life Insurance Co.



To say that Metropolitan Life has a history of far-sightedness is putting it mildly. They were the first insurance company to install a computer sytem.

Today that vision continues with their use of IBM Systems Application Architecture,™ or SAA.™ In fact, while some companies have been "wait-and-see" about SAA, MetLife is decidedly pro-active.

"Nobody ever accomplished anything by waiting," says Daniel Cavanagh, MetLife's CIO, "so when SAA was first announced, we organized a team to study it, to see how it could help us.

"Right away we found advantages. One, SAA is a standard that MetLife, our suppliers and customers can all use and understand. Two, it works with elements we already have. When you've got 35,000 users and 140 million lines of code, that's important. Three, it's an architecture that supports our plans for future cooperative systems. And four, SAA looked like it could improve our development process."

An application.

As tools for building an SAA system became available, MetLife built one. It's interesting to note where.

"Our first application is for underwriters, who have a direct effect on our bottom line."

Underwriters decide if an insurance applicant is a good risk, and risk is what determines the policy's price. Doing the job right means cross-checking several databases.

"Before SAA", says Mr. Cavanagh, "our underwriters paged through screens in sequence, scribbling notes as they went. Now, using OS/2®, they can see several remote and local applications at once, in windows on the screen. So it's easier to compare sources, to make better decisions to respond more quickly. They've got more time to go the extra mile, both for the company and the customer."

An expectation.

"Also, MetLife intends to grow, but not at the expense of service. With our SAA systems, we expect to provide faster, higher quality service as our business expands."

For a new technology, SAA has been surprisingly versatile, in part because SAA makes it easy to plug in modules. The word processor for the underwriter workstation was purchased from one vendor, the help system from another, and both were integrated with MetLife's application.

A reaction.

"But the important thing to know about our move to SAA," according to Mr. Cavanagh, "is how we're doing it. We don't have a timetable for going 'all SAA.' That's not realistic. What we do have is a plan to create SAA applications as needs arise. We're showing the underwriter's application around the company and already people are saying, 'That's great, how can I get something like that?'

"SAA just isn't an all-or-nothing deal. You can build as you need, and you learn as you go. But if you don't start, you never get anywhere.

"We have started, and so far we're quite pleased with the results."

To learn about SAA at Metropolitan Life in more detail, call IBM at 1 800 IBM-6676, ext. 852.

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Hub routing modules address growing networks

ANALYSIS

BY JOANIE M. WEXLER
CW STAFF

As their corporate networks grow in size and complexity, many firms are routing data traffic between local-area networks instead of bridging it. The routing trend — which gives operators of mesh networks greater reliability, security and network management information than bridges — is reflected in several smart hub vendors' recent rollouts of routing modules for their intelligent wiring centers.

Routing is intended to make efficient use of the network by sending data over the most available and direct route between nodes. It also allows the partitioning of networks for tighter access control by eliminating the "broadcast" nature of faster, cheaper but less reliable bridges.

First out of the gate with hub router modules was Synoptics Communications Corp., which started shipping its local Ethernet routing module in December and its remote version last month. Synoptics and hub competitors Cabletron Systems, Inc. and Chipcom Corp. have all teamed with router market share leader Cisco Systems, Inc. to provide integral routers for their hubs. Chipcom and Cabletron will ship their products this summer, as will Ungermann-Bass, Inc., which is using routing technology from Advanced Computer Communications.

Racal-Interlan said it will ship a Retix-based module in October, and Hewlett-Packard Co. is reportedly at work on incorporating Wellfleet Communications, Inc.'s routing technology into its wiring center.

Some limitations

The current generation of cards — including T1 vendor Network Equipment Technologies, Inc.'s (NET) LAN/WAN Exchange, a Cisco-based routing module announced last month for NET's IDNX multiplexer — are limited to linking Ethernet LANs.

The limitation means that "the user needs a more comprehensive routing strategy" than hub modules alone, said Janet L. Hyland, director of network strategy research at Forrester Research, Inc. in Cambridge, Mass.

She said the router-in-a-hub could appeal to "Fortune 1,000 firms with an MIS group managing a mission-critical network sprinkled around many small, remote sites." Another configuration candidate, she said, would be a floor-to-floor local routing situation "where the performance requirements are not high."

Because the Cisco technology being integrated into hubs is its low-end IGS routing, applications are initially limited to those requiring a small number of connections. Also, the performance necessary for routing large traffic loads — such as those concentrated from several devices onto a wide-area link — requires a router with more connections and higher performance, such as a stand-alone Cisco AGS+ or a Wellfleet Concentrator Node.

The main benefits of the router-on-a-card strategy, users and analysts said, is tighter coupling of the device's network management with the hub vendor's network management system and space conservation. The integral router also shares the smart hub's power supply and thus does not introduce another potential point of failure.

The flip side to the power supply sharing is that "you're putting more eggs in one basket," making more devices vulnerable to outages, said Terry Kline, technical services manager at Navistar International Transportation Corp. in Springfield, Ohio. Kline manages Navistar's U.S. network, which is configured around 68 Chipcom hubs. Kline said he is not looking to Chipcom's router-in-a-hub because of slow performance.

"However, we are interested in stand-alone routers for security and because we've reached our limit with bridges" as dictated by the Spanning Tree Protocol standard, he said.

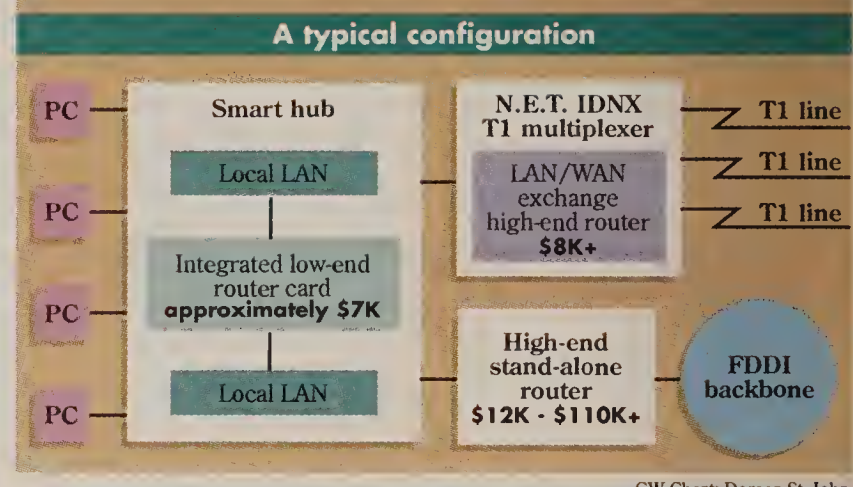
One Cabletron hub user is sticking with the routing software bundled free into Novell, Inc.'s Netware server software. Joe Giljohann, senior microcomputer specialist in the information systems division of the City of Milwaukee, has the luxury of running all Novell Netware IPX protocols networked by a $200 Ethernet adapter card in each of his 16 citywide file servers.

"For now, Cabletron's router module has no appeal to us," he said. "It only handles two Ethernets, and our Novell software is handling five."

The hub router cards are not cheaper than their stand-alone counterparts; in fact, they're slightly more expensive. For example, Cisco's stand-alone IGS router is $4,995 to $5,495, according to Cisco, compared with the $5,995-and-up cost of the hub IGS versions. However, the extra cost generally buys the customer valuable hooks into his hub vendor's network management system.

Rational routing

The low-end routers integrated into smart wiring hubs provide net management hooks and conserve real estate. To route over a backbone or wide area, however, higher performance, stand-alone units are recommended.



CW Chart: Doreen St. John

Find the right route

When embarking on a routing strategy, users with smart hub wiring configurations might consider the following points:

- One benefit of choosing a router module is that it precludes the user from having to change the physical configuration of an existing LAN, said Todd Dagres, director of data communications research and consulting at The Yankee Group, a consulting firm based in Boston. "With a stand-alone router in a centralized location, I have to run another riser from that router and add a port. That's a little less flexible and costs a bit more," Dagres explained.
- In the U.S., Cabletron will not be selling and supporting its own router module — Cisco will handle those areas. This arrangement is not the same as the agreement struck between Cisco and Synoptics: Under that agreement, Cisco will handle its own sales and support and has, according to Dagres, spent "substantially more than Cabletron in training and [research and development] for the router module. It is an issue for a Cabletron customer to have to go to two vendors in that if something goes wrong in a hub, you might not know what's wrong and who to call. That could result in finger pointing."
- Does your hub vendor support the routing technology that you've decided you want to use? For example, be aware that there a compatibility problem currently exists between Cisco and Wellfleet routers because Cisco supports a proprietary routing protocol. However, Ken Fehrnstrom, senior manager of marketing at Cisco, said the company will ship the Internetworking Engineering Task Force-standard protocols that are supported by Wellfleet and other vendors "within weeks of when everyone else does."

JOANIE M. WEXLER

Some users find alternative to net information overload

BY JIM NASH
CW STAFF

Yes, it is possible to have too much information, especially if you are the manager of a small, unsophisticated network.

At a time when the bigger names in network monitoring are rolling out increasingly comprehensive monitoring equipment, some network administrators have said they are overwhelmed by alerts, statistics and protocol analyses.

Bill Posner, MIS director at Nooter Construction Co., a division of St. Louis-based Nooter Corp., said he tested analyzers and monitors by both Spider Systems, Inc. and Network General Corp. "They gave me too much information," Posner said.

He decided instead on Triticom's Ethervision Version 2.0 monitoring software. Posner's Banyan Systems, Inc.'s Virtual Networking Software network consists of two primary sites: one at corporate headquarters with 60 workstations and another in Philadelphia with 50 workstations. Nooter Construction also currently has six temporary remote offices at each of its construction projects.

Posner, whose firm builds refineries and power-generation plants, said that he is not necessarily restricted by cost but that he did not want to pay the thousands of dollars other systems can cost for analyses he would never use.

Triticom, based in St. Paul, Minn., produces bare-bones monitoring software for Arcnet, Ethernet and Token Ring, regardless of the network operating system they are running. Bare bones is not a pejorative term for the product, users said.

Doug Anderson, a programmer at Taylor University in Upland, Ind., and a captain in the 123rd U.S. Army Reserves command at Indiana's Ft. Benjamin Harrison, said he just wanted enough information at both locations to find out where a problem was. Triticom's monitors do not, for example, analyze protocols running across a network, as do Spider and Network General equipment.

At the base, Anderson said, he administers a Novell, Inc. Netware Version 2.15 network with 16 workstations and one server. "The network was constantly going down. We were always shutting down [workstations] to find [out] who was causing the problems." Although problems are less severe at Taylor, he explained, they have installed Triticom Lanvision products as well.

Anderson said Ethervision shows low-level activity such as network traffic, errors and usage. It also issues preset alarms and logs errors to the disk to analyze later.

Cost considerations

Just as important, however, is its price. Both the reserves and the university are under budget constraints, he said, and Triticom Lanvision products are priced from $295 to $495 without adapter cards for each personal computer on which they run.

"We were surprised by the amount of functionality for the price," said Scott Haugdahl, a senior technical consultant at Architecture Technology Corp., a Minneapolis-based network consultancy.

Haugdahl said he would like to see future versions of the products include station-pairing capabilities. Station-pairing allows the software to monitor what is happening between any two stations rather than the single-station viewpoint it currently has.

"We would like to be able to use adapters other than Proteon, Inc.'s in the Token Ring version," Posner said. Triticom requires Proteon cards for its Token Ring software but allows several different vendors' cards to be used on the Ethernet and Arcnet editions.

Power plant

CONTINUED FROM PAGE 47

"I think it's considered a mission-critical application, and it's treated as such," he said. In fact, Lawrence added, "I would rather store the database on the mainframe." He said today's "networking environment does not offer the maturity and fault tolerance of the mainframe world."

However, networks, he said, are far faster than mainframes in delivering large files such as the images compressed into 50K bytes. Lawrence's department holds "guarded confidence" in placing such applications on the 1,800-workstation San Onofre network, he said.

In this case, the speed of the plant's network is 2.3M bit/sec., said Jim Yee, supervisor of network engineering at San Onofre. Arcnet presents a clear advantage over the performance of SCE's IBM 3090 mainframes in distributing files.

Prenetworking world

Arcnet's continued presence at San Onofre reflects the world in which SCE lives — a world heavily regulated by the Nuclear Regulatory Commission (NRC). San Onofre was built in the 1960s before networking was even baptized. It was rigged with thin coaxial cabling for the plant's IBM 3270 terminals.

In 1986, SCE decided to install networks for a relatively small number of plant managers, Yee said. At that time, Arcnet ran only on thin coaxial cable, so it would have the lowest physical and financial impact to install.

Significant recabling would have meant extensive bureaucratic maneuvers to win a design change from the NRC, Lawrence said. The same is true today. He said the financial and work load cost of switching, for example, to a 16M bit/sec. Token Ring network on twisted-pair wiring today would be prohibitive.

"We would want a better payback" in terms of improved performance than could be expected from stringing all new Token Ring networks, Lawrence said. The only exception is in the plant's network room, where most of San Onofre's servers can easily be refitted to improve response time between machines.

"Arcnet has worked well," Yee said. "The best evidence of that is our mandate to expand." He said they will install 50 to 100 PCs on the network this year.

Where the network needs help, it is teamed with mainframes. For the last five years, Lawrence said, San Onofre has used networks linked to mainframes in a "super-mission-critical role." SCE has devised an automated system that tracks the amount of radiation to which individual employees are exposed.

"The network runs as a front end" for the mainframe, he said. As employees enter areas of higher radiation, they run a magnetic-stripped identification card through a reader attached to a networked PC. The PC adds an estimated dosage for a given task to the worker's recorded total dosage and decides whether to admit him. The PC adds the actual exposure to the employee's file when he exits.

Each file is regularly passed to one of several IBM 3090s for hard-core number crunching and storage. Lawrence said each system performs tasks for which it is noted. The PC network works well with bar code and card readers, and it is easy to use for data entry. The mainframe does the intensive computing.

AT&T inks E-mail deal with Hong Kong carrier

BY ELISABETH HORWITT
CW STAFF

BASKING RIDGE, N.J. — AT&T has announced an agreement with a major Hong Kong carrier under which AT&T will provide international electronic mail, fax and electronic data interchange (EDI) services to Hong Kong via its AT&Tmail offering.

AT&T will offer its services through Hutchison Whampoa's subsidiary, Hutchison Global Data, which provides a wide range of network services in Hong Kong and the Asia Pacific region. AT&T has already installed a node in Hong Kong through which it will sell fax, E-mail and EDI services within Hong Kong and between Hong Kong and other countries served by AT&Tmail, according to AT&T spokeswoman Jeanette Goldstein.

A solid market

"This is a strong market for us, since 37% of all Hong Kong trading is done in the U.S., and more than 385 of the global Fortune 1,000 companies have locations in Hong Kong," Goldstein said.

By supporting fax, EDI and E-mail in bulk over its own leased-line international connections, AT&T can charge affordable prices for all three messaging media, Goldstein indicated.

AT&T is waiving the international surcharge on its U.S.-to-Hong Kong E-mail traffic "so that it costs the same to send a message between [Los Angeles] and Hong Kong as to send it from L.A. to San Francisco," Goldstein said.

Messages going from Hong Kong to the rest of the world via AT&Tmail are surcharged by Hong Kong's carrier, however. The cost for messages of up to 1,000 characters is about 45 cents, an AT&T spokesman said.

The service will also provide connectors to other E-mail services via CCITT X.400 gateways.

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Aetna to unite systems under one architecture

BY ELISABETH HORWITT
CW STAFF

HARTFORD, Conn. — A recently reorganized information systems group at Aetna Life & Casualty Co. is now pushing to migrate disparate, proprietary user systems into a consistent, standards-based computing architecture. The architecture, many parts of which are as yet undefined, will provide consistent host, networking and workstation platforms across the company, according to Aetna's chief information officer, John D. Loewenberg.

The architecture could save Aetna $200 million to $300 million during the next five to six years, Loewenberg said. Besides cutting user training and maintenance costs, a standardized user workstation environment will pave the way to more effective information exchange among Aetna employees and between Aetna representatives and their customers, Loewenberg said. Aetna hopes to move from paper-based to computer-based communications for "all types and forms of information," he added.

The IS group finalized specifications for the user workstation environment, Consistent Office, earlier this year, and began implementing it at user sites last week. The platform calls for Intel Corp. 80286-, 80386- and I486-based personal computers running Windows, Microsoft Word and Excel, all from Microsoft Corp.

Loewenberg emphasized that the migration to Consistent Office "is not a forced march." Rather, users will be encouraged to migrate to the system when they can cost-justify it: for example, when they are adding or making major changes to applications.

Also in the works is a corporatewide network backbone that will ensure reliable, cost-effective information flow to the user workstations. The backbone, whose design has yet to be finalized, will replace the present mixed bag of divisional networks, Loewenberg said.

Still up in the air is what Aetna intends to do long term with workstations that do not fill the Consistent Office mold, such as its extensive installation of Apple Computer, Inc. Macintoshes. The IS group intends to look for ways to integrate the Macintoshes with Consistent Office, rather than push users to abandon the Macintoshes, Loewenberg said.

Aetna has also chosen Token Ring as its local-area network architecture and IBM's LAN Manager and Novell, Inc.'s Netware as its server architectures. At the moment, the majority of LAN servers at Aetna run Netware.

Loewenberg estimated that it would take three to five years for the new environment to be "all there" at Aetna.

One key architecture that is at the "ground zero" stage of planning is Aetna's database structure, Loewenberg said. The goal is to integrate disparate databases at Aetna to have "one and done" data entry, according to company spokesman John Hawkins. That would mean that when the operator entered a new customer or policy change into the database, it would automatically proliferate it across all relevant databases.

Aetna has yet to determine what standard architecture, if any, it will implement for its hosts, Loewenberg indicated. The company has major installations of both IBM and Digital Equipment Corp. hosts.

Net standards nudge forward

BY JIM NASH
CW STAFF

SANTA CLARA, Calif. — In one small leap, the networking industry may have moved closer to centralized, standards-based systems management. 3Com Corp. recently announced graphics-based network management software for its products.

At about the same time, Novell, Inc., the leading network software maker, outlined its first standards-based management strategy for its Netware products. While each company is concentrating on management of its own goods, there are commonalities.

Like Novell, 3Com said its management products will support Simple Network Management Protocol. Both companies' strategies also call for centralized management via IBM Netview consoles.

3Com's new software is called Viewbuilder. It integrates management of its terminal servers, bridges, routers, hubs and adapters. The company has incorporated a graphical monitor screen that indicates possible problems. Viewbuilder can also automatically carry out functions at designated times or when specific events occur. It is currently shipping.

Claude King, senior systems analyst at the University of Florida's School of Journalism, has used a beta-test version of the system to automatically flip traffic on one network to another when problems arise.

For example, Viewbuilder will shunt traffic from the school's newsroom network to the mirrored server used for classes, King said. Previously, that switching had to be done manually, which could cost newsroom uptime.

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Library

CONTINUED FROM PAGE 47

The LIR has concentrated initially on public domain documents because it will have to do some negotiating with publishers before it can make electronically available publications whose copyrights have not lapsed, Voges said.

Some publishers require a 50 cents per page license fee, which the LIR will have to tack onto its service charge. The worldwide document image transmission service will cost $20 per document, with telecommunications charges added in some instances, according to Voges.

Users can access documents over international networks such as Bitnet, as well as over dial-up lines for fax delivery, Voges said.

Meanwhile, in Washington, D.C., the Washington Research Library Consortium has created a database of bibliographic information about volumes and documents residing in eight university libraries within the area.

Benefiting higher education

The consortium was created about four years ago to enhance the library collections and services of its members, which include American University, Gallaudet University, George Washington University and Georgetown University.

Running on an IBM mainframe, the system will act as an electronic card catalog for about 2.5 million bibliographic entries. In addition to materials residing at the eight universities' libraries, the catalog will list materials that will be stored in a common warehouse now being built, according to Carl Whitman, manager of computing and telecommunications for the consortium.

Although other universities have built electronic databases of this type, "what's new is that these different schools are voluntarily coming together for cost containment, even though they are competitors," Whitman said.

Tough job

The consortium hired Dowty Communications, a subsidiary of UK-based Dowty Information Systems Ltd., to provide the multiplexers to connect member universities' internal networks to the IBM system. This was a bit of a job, Whitman said, given the hodgepodge of networking protocols various schools use, including AT&T's Integrated Systems Network, Digital Equipment Corp.'s Decnet and dial-up asynchronous connections.

An IBM 7171 box was used to translate transmissions from library terminals, which use an ASCII-based standard, to IBM's EBCDIC.

While the consortium has no immediate plans to store books electronically, Whitman said, "that's where we are headed." The high-speed network provided by Dowty "lays the technological groundwork" for these plans because it provides some of the high bandwidth needed to transfer images, he added.

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The Sprint division of United Telecom, Inc. has announced the Sprint Bandwidth-on-Demand Controller.

The controller lets Sprint communications network users add or subtract 56K bit/sec. circuits in real time, depending on current data stream requirements. Bandwidth can range from 56K bit/sec. to 1.344M bit/sec. The controller costs $5,000 to $12,500.

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Modems

AT&T Paradyne has created upgradable modems: the Comsphere 3800 series.

The software-definable modems can add new features — including network management capabilities — through firmware upgrades provided over the public telephone network. The 3810 stand-alone model supports dial-up and two- or four-wire leased-line applications. The 3820 model supports dial-up and two-wire applications. Both support V.32 bis and V.42 bis communications. A multimount carrier card is also available.

The 3810 costs $1,595, the 3820, $1,395. The carrier card costs $1,495.

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Gateways, bridges, routers

Xyplex, Inc. has released enhancements for its internetworking products.

Xyplex Maxserver Bridge Software Version 1.2 includes Fully Distributed Redundant Bridging, a parallel bridging technology for fault-tolerant internetworking. The upgrade will be provided to all Maxserver users under support contract. An unlimited-use license costs $200 for users without support contracts.

A new local Ethernet bridge, the Maxserver 3010, acts as a selective repeater, forwarding only packets that meet user-specified criteria while keeping other traffic local. The bridge costs $3,695.

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MANAGER'S JOURNAL

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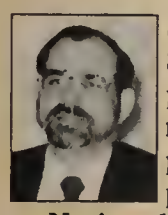

Stephen Sohles has been promoted to the newly created position of vice president of MIS at **National Amusements, Inc.**, the Dedham, Mass.-based operator of Showcase and Multiplex theaters.

Sohles joined National Amusements in 1985 as director of MIS. He has overseen the firm's conversion from an IBM System/38 to an Application System/400, developed a film information system and built a new computer room.

Before joining the firm, he was manager of financial systems at United Brands Co.'s corporate data center in Boston. Before that, he was director of commercial systems and services at Commercial Union Insurance Co.

Sohles began his information systems career with 12 years at Acushnet Co. in New Bedford, Mass., where he held the jobs of projects manager, manager of golf division systems and systems analyst/programmer.

He holds a bachelor's degree in business management from Southeastern Massachusetts University.

.....

Richard McGeary, formerly chief financial officer of IS at Connecticut Mutual Life Insurance Co. in Hartford, Conn., is now president of his own consulting firm, **McGeary & Associates**, in Berlin, Conn.

The firm specializes in the technical support, enhancement and development of executive information systems and decision support systems.

McGeary is a certified public accountant who holds a bachelor's degree in business administration from St. Bonaventure University.

.....

Ronald M. Cohan has been named director of information services at **Alternative Transportation Systems Group** in Homewood, Ill. The firm consists of five metals transportation and distribution companies.

Cohan will be responsible for managing the company's conversion from a System/36 to an AS/400. He has 18 years of experience in operations and IS.

The New England's world-class life

Systems initiative enables focus on policyholders rather than individual policies

BY CHRISTOPHER LINDQUIST
CW STAFF

Michael Brown, New England Mutual Life Insurance Co.'s senior vice president of corporate management services administration, is looking forward to the future. The company, known as The New England, is 1½ years into the Strategic Systems Initiative — a fundamental restructuring of how it uses information systems to do business — and Brown is getting a chance to see his IS philosophies put to good use.

The $50 million project is intended to totally revamp The New England's way of doing business, from the ground up. It is slated for completion in 1993.

Brown says fundamental changes are taking place because the firm doesn't want to automate inefficient processes. "I call that 'paving the cow path,' " he says. "It doesn't make you go any faster — you just feel better."

One visible example of those fundamental changes is the company's new focus on policyholders rather than just policies. Customers will be looked at as the sum of all of their policies instead of on a policy-by-policy basis.

Brown says the firm has two major objectives for the project. The first is to make The New England's independent agencies, which it calls distributor centers, into showcases for the industry. He says the firm hopes this will attract high-quality field people and make them more profitable, thereby making the company more profitable.

The second goal is to make The New England deliver world-class service. Where does IS fit into that? Using technology to help move the policy approval process closer to the agencies and away from the central office, for example, can cut turnaround time on policies by two-thirds.

Stella Johnson

Brown's IS philosophy *is being implemented at The New England as the Strategic Systems Initiative*

The company is making good progress toward goals like that, Brown says. "It's always good to be able to say you're a year and a half into it, and you're still on schedule — and we have delivered systems to date," he says.

Brown, a graduate of the U.S. Naval Academy, knows a thing or two about the processes he is trying to change. He has been at the Boston-based life insurer for nearly two decades, joining it in 1972 after a two-year stay at Electronic Data Systems Corp. as a systems engineer. Prior to that, he spent 3½ years as a U.S. Navy pilot.

Brown says IS workers at the company always have to keep one thing in mind: "They have a basic goal of meeting or exceeding our customers' expectations every time," he says. He breaks down that goal into five categories or "operating beliefs," as he calls them, which form a framework for all systems operations within the $17 billion company.

He emphasizes the need for a business attitude and "understanding what adds value to our customers' business plan," adding that "our folks really view themselves as businesspeople first.

"They are trying to understand how they can utilize technology to increase the value of what the different lines of business and different customers are trying to do," he says.

His second point is also business-related. IS needs to be constantly aware of the bigger business picture by working with "strategic responses" instead of just systems projects.

One recent example of a strategic

Continued on page 60

Highways, health care targeted for IS help

BY CLINTON WILDER
CW STAFF

John Diebold thinks society could do a much better job of applying information systems to solve its problems, and he's trying to do something about it.

Diebold's IS consulting firm, The Diebold Group, has been through a significant retrenchment in the past couple of years, but Diebold himself remains active on the global business scene. His latest idea is to form a commission — under the auspices of his Bedford Hills, N.Y.-based Diebold Institute for Public Policy Studies, Inc. — to research and recommend how IS can improve the highway transportation and health care systems of the U.S. and Europe.

"The problems are not technology problems," Diebold said. "The problem is that technology moves much faster than public policy."

The 12-member commission, to be selected by Diebold this fall, will research so-called intelligent vehicle/highway systems and health care information infrastructures.

Both areas were chosen because they currently create significant expenses and productivity obstacles for industrial societies, obstacles that could be overcome by information technology.

The U.S. Congressional Office of Technology Assessment estimates that highway delays cost the public $30 billion annually, while the total bill for U.S. health care this year is estimated to top $750 billion [CW, July 1].

The commission will take a look at the current use of computer and communications technologies in both areas in the U.S., Europe and Japan. The project is funded by a grant from the Alfred P. Sloan Foundation.

"Our ultimate goal is to change policy," Diebold said. "There is a lot of potential to use technology in these areas, but there is a lot that needs to change to realize that potential."

The research will focus particularly on the different roles that should be played by private and public sector organizations — roles that vary greatly between the U.S. and Europe. "It seems to me that the public/private interface is where a lot of the action is going to occur," Diebold said.

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The New England

CONTINUED FROM PAGE 57

response is a centralized, toll-free client service number. The toll-free service line will take some of the burden of customer service off of the nearly 100 distributor centers, resulting in faster service for policyholders and less time being spent by the agencies answering day-to-day policy questions.

Brown says the company spends a lot of time examining the way individual projects fit into overall corporate goals. "That enables us to really talk about long-term investment rather than short-term expenses," he says.

However, long-term goals do not necessarily mean slow response. "The shelf life of either a product or a service today is so short compared to what it was 20 years ago, maybe even 10 years ago," Brown says. "We need to make sure that we meet the market when it's there."

As with many companies these days, reducing costs also makes The New England's priorities list. Brown calls this an "American agenda" item more than a company item. However, he is adamant that cutting costs should never compromise the quality of a system. "Quality was, is and will continue to be the hallmark of our organization," he says.

Last and most important, Brown says, is partnership — from the head offices right down to the bottom rungs of the corporate ladder. "You have to have this partnership where you understand what [users] are doing and together decide on the proper course of action," he says.

All systems projects at The New England are worked on cooperatively by committees of internal customers and systems personnel. The partnership is intended to work together throughout the project, from conception to completion.

However, completion is not simply writing and running the final piece of code, according to one high-level user. Ed Hall, The New England's executive vice president of client services, says everyone must be happy with the outcome of the project before systems personnel move on.

"It's only when the process is completed from A to Z and we're happy as an internal customer and our external customers are happy that Mike's people go off and get onto another project," he says.

Hall adds that he appreciates the idea of being a customer instead of a user, an attitude Brown was instrumental in promoting. "I can remember the old days when people treated us and referred to us as a user, which always bothered me," he says. He describes the current situation as being very much a team relationship — and that's something Brown agrees with.

"Everybody checks their ego outside the door," Brown says, "and things get done."

Many members of his management team have been with the company even longer than his own 19 years. Brown says that "spousal communication," where one person knows what the others are thinking, aids in quick decision-making.

Brown's enthusiasm about the company's future and the Strategic Systems Initiative is obvious, despite the numerous obstacles he knows he will face. "There's just an energy that's really hard to describe," he says. "It's really exciting."

MANAGEMENT SHORTS

Peat Marwick, Unisys team up

Strategic alliances are all the rage lately, and management consulting firm **KPMG Peat Marwick** got into the act recently by teaming up with systems vendor **Unisys Corp.** The companies, in what they termed a "long-term business alliance," plan to cooperate on systems integration, marketing and software development in the U.S. Initial focus areas will be financial management, human resources management and discrete and process manufacturing.

The alliance already has its first customer: **American Commercial Barge Lines** in Jeffersonville, Ind., will work with Peat Marwick and Unisys to develop human resources management applications, said to Don Peters, vice president of information systems at American Commercial Barge.

Unisys and Peat Marwick will establish a Technology Resource Center near Atlanta. Staffed by 20 Peat Marwick employees, the center will be responsible for alliance development, integration and demonstration activities.

Input, Inc. in Mountain View, Calif., has revised its growth forecast for the professional computer services market downward for the first half of the 1990s. Input had predicted a 14% annual growth rate for the market between 1989 and 1994, but a less-than-expected 10% growth in 1990 resulted in a predicted growth of 12% for the 1990-1995 period.

Input researchers attributed the slower growth to nonessential projects being delayed by recession-strapped IS departments. Professional services firms whose skills revolve around Cobol programming are especially hard hit.

dFacts Are In.

DATABASE COMPARISON TABLE	dBASE IV version 1.1	Paradox version 3.5	FoxPro version 1.02
EASE OF USE			
Control Center organizes data, queries, forms, reports, labels, applications on one screen	Yes	No	No
Create applications *without programming*	Yes	Yes	No
Modern pulldown menus for all Design Tools	Yes	No	Limited
Query by Example (QBE) for easy access to information	Yes	Yes	No
Context specific help by menu item	Yes	No	No
PRODUCTIVITY			
Quick Layout for automatic forms, reports and labels	Yes	No	Yes
Application Generator for quick application development	Yes	Yes	No
Automatic code generation for all Design Tools	Yes	No	No
Automatic maintenance of multiple indexes for ordering data	Yes	No	No
Memo fields for notes, letters, descriptions	Yes	No	Yes
POWER & FLEXIBILITY			
Bold, underline, italic, subscript, superscript text for high impact reports and labels	Yes	No	No
User Defined Functions for extending programming language	Yes	No	Yes
Data input validity checking in forms	Yes	Yes	Yes
Multi-user transaction processing ensures data integrity	Yes	No	No
Number of file formats imported/exported	7	6	3
INDUSTRY STANDARDS			
#1 Selling, #1 Rated multiuser database; over 3 million users (1)(2)	Yes	No	No
Compatible with dBASE III PLUS data and applications	Yes	No	Yes
Compatible versions for DOS, VAX VMS, Macintosh, SunOS and other UNIX platforms (3)	Yes	No	Limited
Structured Query Language (SQL) integrated with programming language	Yes	No	No

(1) dBASE III PLUS and dBASE IV comprise approximately 55% of PC database systems sold (3 times nearest competitor) according to the most recent report by the market research firm Audits & Surveys (Oct. 1990) (2) Software Digest rated dBASE IV #1 among multiuser databases, October 1990 (3) Versions of dBASE IV are shipping for DOS, VAX, and SunOS. Macintosh and other UNIX Platforms are announced

Based on what our customers tell us, we made a list of some of the most important features to look for in data management software.

Then we compared the new dBASE IV® version 1.1 with two other database products.

As you can see, dBASE IV offers exclusive advantages in many categories.

For instance, only dBASE IV lets you access all its functions from a single screen. Called the Control Center, this screen lets you manage existing data, and create new tables, queries, reports, forms and labels totally without programming.

When all the facts are on the table, it's easy to see which database software is best.

Of course we aren't the only ones who have come to this particular conclusion.

Software Digest rates dBASE IV version 1.1 the #1 Multiuser Database (Vol. 7, No. 13, Oct. '90).

Trademark/owner: dBASE IV, Ashton-Tate, Ashton-Tate logo/Ashton-Tate Corp. Other company or product names mentioned may be

CLIPS

Tim Lewis

Summaries from leading scientific and management journals

"A users' perspective of the critical success factors applicable to information centers"

By Simha R. Magal and Dennis D. Strouble

Information Resources Management Journal Spring 1991

■ Information centers were designed to facilitate and coordinate end-user activities. Therefore, information center managers must be willing to listen to today's sophisticated end users as they determine the critical success factors for the information center.

In a study of 174 users whose companies had annual sales of between $1 million and $75 billion, with an average of $7.9 billion, the most important success factors for information centers were a competent staff, reliability of services provided, end-user training, communications with users and software support packages. The least important success factor for users was chargeback criteria.

Accomplishments, however, differed slightly from expectations. Those polled said that while there were high levels of achievement for three of their top five critical success factors, training and software support packages did not score as well on the achievement scale as some other factors.

The study also determined that type and quality of services and expectations both have a direct effect on information center success, with type having three times the effect of quality. Commitment and environment appear to affect information center success indirectly, by determining the expectations and type/quality of services.

According to the study, users believe that to be successful, information center management must be able to establish an appropriate environment so that realistic expectations may be formed and the necessary services identified and delivered. — *Alan J. Ryan*

"The feasibility of converting to an open systems architecture"

By Dan Schneider

Journal of Systems Management June 1991

■ A burgeoning business led the Newton Manufacturing Co. to think about converting its present computer system, served only by a single mainframe, to an open client/server database.

To deal with the influx of new customers and sales, the large distributor of promotional goods began a three-year study to determine the feasibility of an open systems network, hoping to prevent a system overload and to link the company's multiple processing units.

The success of the new system is ensured by a feasibility team devoted to the planning, analysis, design and implementation of the new system, along with a list of deliverables and benefits keeping the project on track. These include detailing how team members can effectively contribute to the success of the project; resource coordination to keep things within budget, along with progress reviews delivered to management; contingency plans addressing potential obstacles and alternative courses of action; and an experienced project management team.

If everything goes according to plan, the equipment installation will occur in three phases over the next two years. Once the network is complete, most of the 200 employees will be supplied with workstations. — *Jodie Naze*

"Case Study: Improving Customer Service Through New Technology"

By Del Peterson

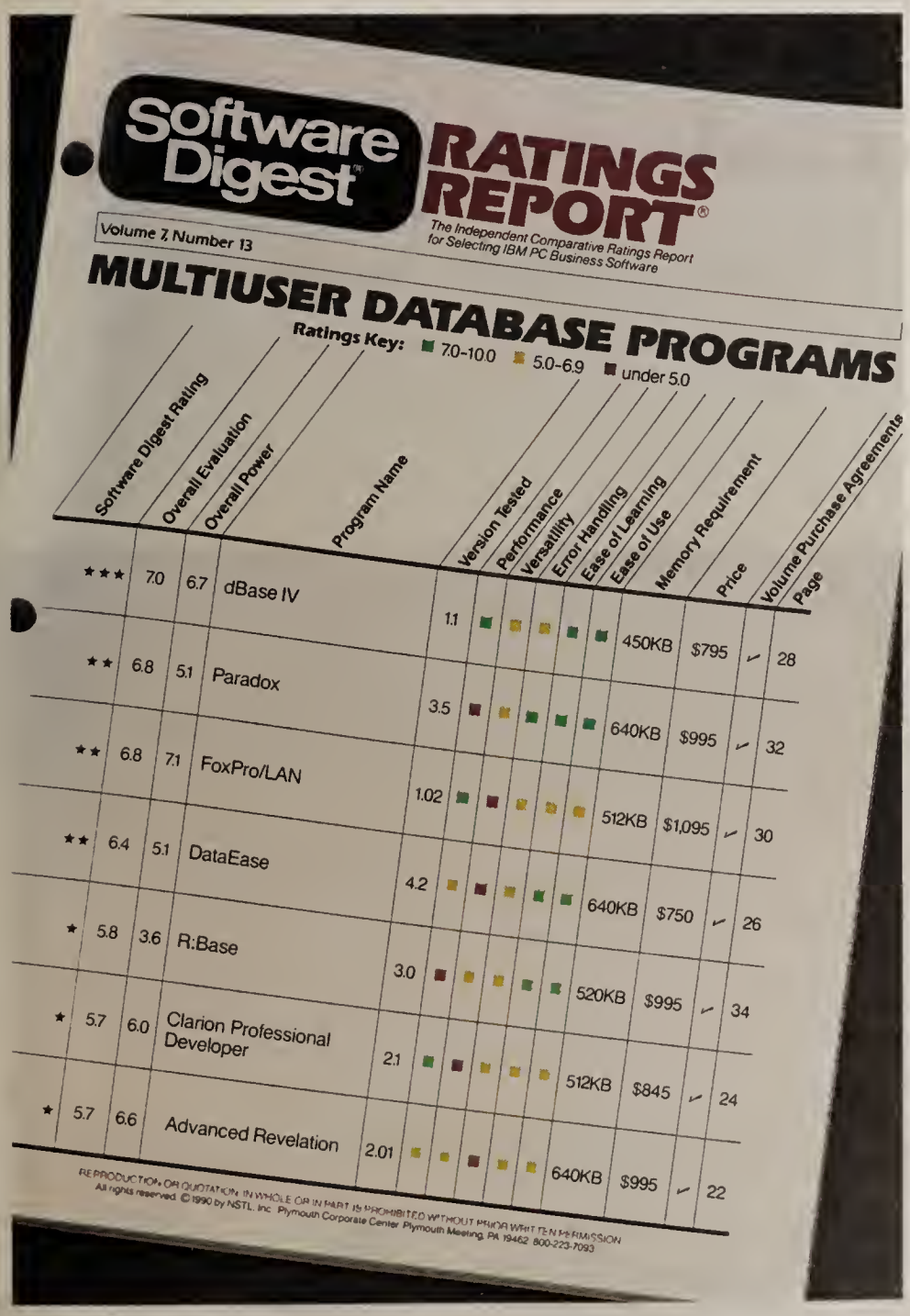
Journal of Information Systems Management Spring 1991

■ Information Handling Services (IHS), a Denver publisher of technical information, found that the implementation of an electron beam recorder and optical disc technology helped it to accomplish two things: It was able to cut down on time and costs by not having to refilm entire catalogs when minor changes were made, and it eliminated the wear and tear on the pages because they were scanned and handled only once.

IHS suggests the following tips to others who are pursuing new technology:

- Do not be afraid to outsource.
- Carefully screen outside vendors to ensure that they will fulfill your goals.
- Be flexible with your expectations. — *Kelly E. Dwyer*

dTruth Comes Out.



Perhaps the most independent publication in the industry, *Software Digest* accepts no advertising whatsoever. Corporations pay hundreds of dollars a year to receive their monthly reviews—which are considered highly unbiased and objective. Their exhaustive, 75-page report concludes:

"Among the top ranking programs, dBASE IV (version 1.1) is the most well-rounded, with solid performance, versatility, and usability." Commenting on speed, *Software Digest* points out that "dBASE IV produces all three test reports as fast as or faster than FoxPro/LAN." As for Ease of Use and Ease of Learning, dBASE IV scored in the Excellent Range as many times as any other multiuser database product tested.

For a free evaluation kit, including competitive details and a free demo disk, call toll-free: 1-800-437-4329 ext. 1416. Better yet, call 1-800-2ASHTON to upgrade to the new dBASE IV now.

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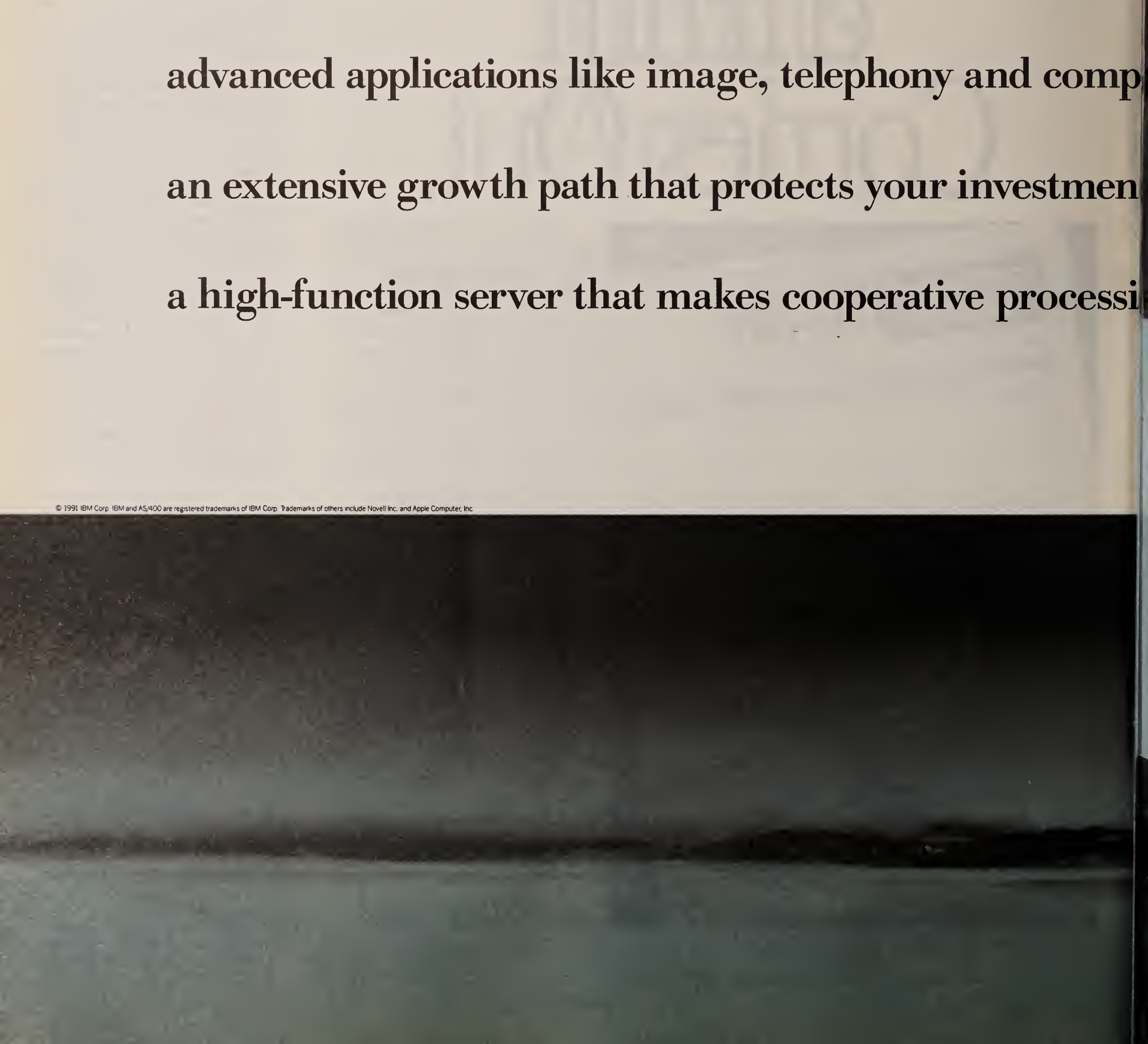

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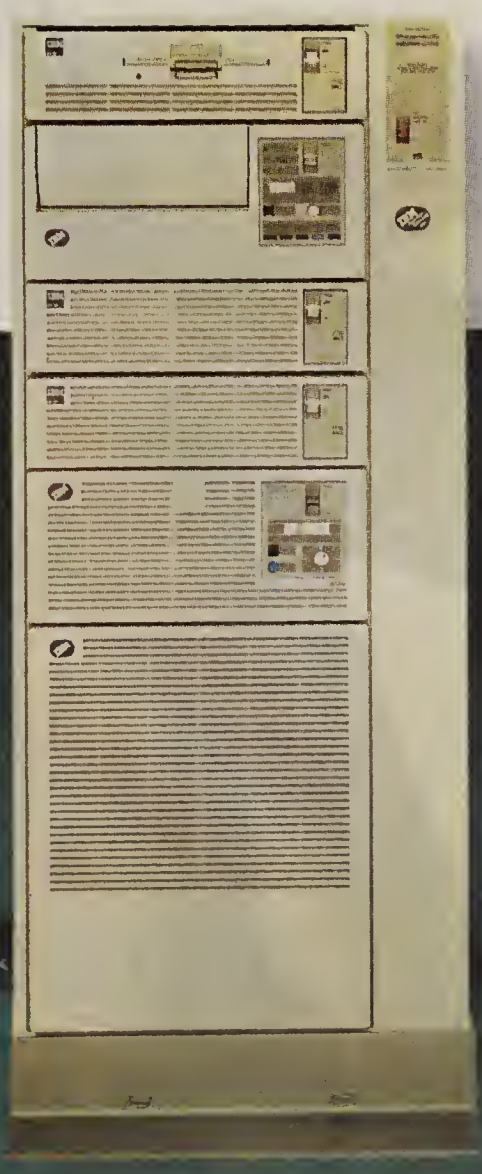

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COMMENTARY

Les Gilliam

Divvying up the IS pie

Until recently, the typical corporate organization made end users totally dependent on the information systems function for services such as applications development, data processing and technical support. Now we find many end users who are, or would like to be, totally independent of the central IS group.

But is that ever the best arrangement? Shouldn't there be a balanced relationship that provides a win/win solution for IS and for users?

Once they really understand what is involved, many users are not gung ho to take on IS responsibilities. Some demand the right to do their own thing and regret it later.

And there are still those users who are quite satisfied with running their own show, but they are woefully inefficient, overly expensive and backward in the use of technology.

There are a variety of options in establishing the appropriate relationship between IS and the end user. No two situations are alike, and no one arrangement is ideal for everyone. As with so many questions of this type, answers depend on specific circumstances.

However, among IS organizations that have decentralized, there do seem to be some common themes in deciding which functions should be retained by IS, which are commonly dispersed to users and which should be shared.

The primary responsibility of the central IS group should be to provide leadership in the application of computer and telecommunications technology to the company's business.

This leadership should, at a minimum, result in establishing the policies and standards by which all entities within the company will work in concert to achieve the common good. The common good may include increased profitability, enhanced services or improved cost-effectiveness.

The policies should cover topics such as information as a corporate asset, every information asset having an owner and the requirements for physical, data and access security.

Where appropriate, those functions exclusively assigned to IS, such as managing the corporate network and physical wiring, would also be included.

Standards might include such topics as project methodology, documentation and common tools that dictate the need for compatibility. Included in this category could be the types of minicomputer and personal computer/local-area network products supported, along with the corporate network standards.

Other functions being retained by most central IS groups include mainframe operations, wide-area networks, wiring and cabling, electronic mail and corporate databases.

It also makes sense for IS to offer many types of services that could benefit all users, such as education and training, operating systems support for departmental systems and LAN backup.

IS functions that should be turned over to the end users probably already include data I/O, ad hoc query and report writer functions and minicomputer operations. Also, many users are now quite capable of acquiring, installing and managing their own PC and LAN operations.

Some of the greatest benefits of distributed computing, however, will come from those areas in which extensive knowledge of the users' business is more critical than IS skills.

When the user employee can be taught to use the available computing tools more quickly and cheaply than the IS person can learn the user's business, it is time to consider letting the users control that part of their IS needs.

The functions that should be shared between users and centralized IS can include long-range planning, selection of corporate goals and standards and the scheduling of major network changes.

This can be done by establishing one or more computing councils with members representing user groups. The councils should meet regularly for both strategic and tactical planning sessions.

The most sensitive and debatable function regarding user involvement is applications development. A lot of companies are keeping applications development for corporatewide systems in IS and are distributing departmental applications development.

The big risk is the user department's ability to offer meaningful career opportunities to computing professionals. With a rotation or transfer arrangement with the central IS group, employees can have the best of both worlds by gaining user-based experience while retaining the tie to the IS department.

In this hybrid centralized/distributed environment, IS will be successful only if it remembers that the user is the customer. Meeting the customer's needs, regardless of the tools or procedures, is not just the top priority, it is the very reason that IS exists.

Gilliam is president of Gilliam Associates, a computer management consulting firm in Ponca City, Okla.

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CALENDAR

The Windows and OS/2 conference will be held at the World Trade Center in Boston on Aug. 14-16 and will focus on the personal computer needs of the corporate end user.

Price Waterhouse's director of information and technology, Sheldon Laube, will deliver the keynote address. An OS/2 strategy briefing will be given by Lee Reiswig and Joseph Guglielmi, both from IBM's Personal Systems Division.

For more information and to register, contact CM Ventures in Emeryville, Calif. (415) 601-5000.

AUG. 4-10

Rolmo Technologies Conference. Seattle, Aug. 4-7 — Contact: Andy Rebele, The Westwater Group, Boulder, Colo. (303) 440-3410.

Interex HP Computer Users Conference. San Diego, Aug. 5-8 — Contact: The Interex Conference Department, Sunnyvale, Calif. (408) 738-4848.

Implementing Re-engineering: Process, Tools, Techniques. Boston, Aug. 6-8 — Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555.

CASE World. Boston, Aug. 6-8 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-0526.

Londex '91. San Francisco, Aug. 8-10 — Contact: Local Area Network Dealers Association, Elmhurst, Ill. (708) 279-2255.

AUG. 11-17

Informotion ond Technology: Gotewoy to Solutions. San Francisco, Aug. 11-15 — Contact: Urban & Regional Information Systems Association, Washington, D.C. (202) 289-1685.

Monufocturing Networks Conference. Chicago, Aug. 12-13 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Electronic Doto Interchonge for Government. Washington, D.C., Aug. 12-15 — Contact: U.S. Professional Development Institute, Silver Spring, Md. (301) 445-4400.

The Notionol Conference on Computing. New Haven, Conn., Aug. 12-16 — Contact: The Research Center on Computing and Society, Southern Connecticut State University, New Haven, Conn. (203) 397-4423.

AUG. 18-24

Shore 77. Chicago, Aug. 18-23 — Contact: Share Headquarters, Chicago, Ill. (312) 644-6610.

MIS Troining Week West '91. San Francisco, Aug. 19-23 — Contact: Pamela Bissett, MIS Training Institute, Framingham, Mass. (508) 879-7999.

The Sonto Cruz Operotion Forum '91. Santa Cruz, Calif., Aug. 19-23 — Contact: The Santa Cruz Operation, Santa Cruz, Calif. (408) 425-7222.

Fed Micro. Washington, D.C., Aug. 20-21 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

Fose CD-ROM Conference ond Exhibition. Washington, D.C., Aug. 20-21 — Contact: Sylvia Griffiths, National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

AUG. 25-31

Surfoce Mount Internotionol Conference ond Exposition. San Jose, Calif., Aug. 25-29 — Contact: Miller Freeman Expositions, Boston, Mass. (617) 232-3976.

Internotionol Security Conference. New York, Aug. 27-29 — Contact: Cahners Exposition Group, Des Plaines, Ill. (708) 299-9311.

Dotobose ond Expert Systems Applicotions. Berlin, Germany, Aug. 28-30 — Contact: Dimitris Karagiannis, Ulm, Germany (011-49) 37-150-1540.

Advonced Communicotions Technology Sotellite Progrom. San Jose, Calif., Aug. 29-30 — Contact: Mary B. Gibbs, Public Service Satellite Consortium, Arlington, Va. (703) 979-0801.

SEPT. 1-7

Very Lorge Doto Boses. Barcelona, Spain, Sept. 3-6 — Contact: VLDB '91-Difusora de la Informatica, SA, Barcelona, Spain (011-34) 3-418-8067.

HD World. San Francisco, Sept. 4-6 — Contact: Meckler Conference Management, Westport, Conn. (203) 226-6967.

Unix Open Solutions '91. San Jose, Calif., Sept. 4-6 — Contact: Unix Open Solutions '91. Needham, Mass. (617) 449-8938.

SEPT. 8-14

Development Center Institute Conference. San Diego, Sept. 8-11 — Contact: Development Center Institute, Inc., Indianapolis, Ind. (317) 846-2753.

Monoging the Move to Workstotion-Based Development — The Wove of the '90s. San Diego, Sept. 8-11 — Contact: Development Center Institute, Inc., Indianapolis, Ind. (317) 846-2753.

Disoster Recovery Symposium ond Exposition. Atlanta, Sept. 9-11 — Contact: Disaster Recovery Journal, St. Louis, Mo. (314) 846-1001.

Symposium on the Computerizotion ond Use of Moteriols Property Doto. Cambridge, England, Sept. 9-11 — Contact: Teresa Cendrowska, ASTM, Philadelphia, Pa. (215) 299-5546.

Digitol Equipment Computer User Society (DECUS) Europe Symposium. The Hague, Sept. 9-13 Contact: DECUS Europe, Petit-Lancy, Switzerland (011-41) 22-709-4264.

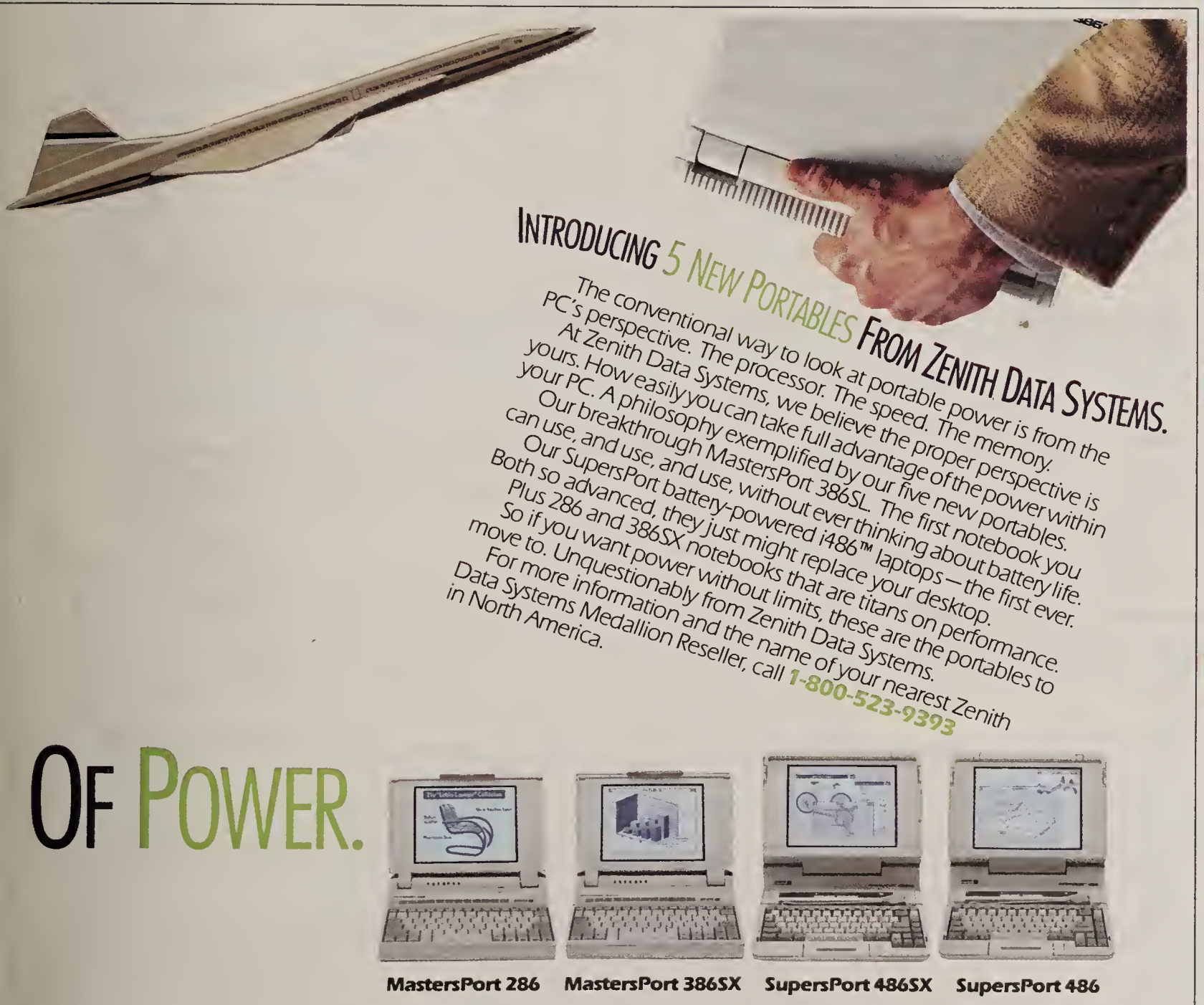
Doto Storoge. San Jose, Calif., Sept. 10-12 — Contact: Forum Management, Cartlidge and Associates, San Jose, Calif. (408) 554-6644.

Downsizing Expo. Los Angeles, Sept. 10-12 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Government Neurol Network Applicotions Workshop. Huntsville, Ala., Sept. 10-12 — Contact: Rene Kirkwood, U.S. Army Research Office, Research Triangle Park, N.C. (919) 549-0641.

Informotion Highwoys: Linking Americo for Interoctive Communicotions. New York, Sept. 11-12 — Contact: Business Week Executive Programs, New York, N.Y. (212) 512-2184.

ABCD: The Microcomputer Industry Associotion's Brookowoy '91 Conference. Atlantic City, Sept. 11-13 — Contact: Deborah Keating, ABCD, Ridgeland, Miss. (601) 977-9033.



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Memory (Std./Max.)	1MB/2MB	2MB/4MB	2MB/8MB (64K cache)	4MB/16MB	4MB/16MB
Hard Disk Drive	30MB	60MB	60MB	120MB	120MB
LCD/Size	Backlit/8.85"	Backlit/8.85"	Backlit/8.85"	Edgelit/10.7"	Edgelit/10.7"
Video/Gray Scales	VGA/16	VGA/16	VGA/32	VGA/64	VGA/64
Power Management	• Suspend/Resume • Sleep mode • Low battery operation	• Suspend/Resume • Sleep mode • Low battery operation	*Premier System Management™* • Standby/Resume • Rest/Resume • Panic Save • Unattended communications	*Intelligent Power Management™*	*Intelligent Power Management*
Software	MS-DOS® included	MS-DOS included	MS-DOS pre-installed, Microsoft® *Windows™* v. 3.0 included	MS-DOS and Microsoft *Windows* v. 3.0 pre-installed	MS-DOS and Microsoft *Windows* v. 3.0 pre-installed
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PC PRESENTATION GRAPHICS SOFTWARE

Businesspeople are learning to express themselves through pictures as this software gains sophistication and ease of use

BY ALAN RADDING

When you're in front of an audience asking for funding, you'd better make a pretty good case. These days, that means not only having your facts in order but also showing the audience the points you are trying to make.

Mark Hammons, a systems developer at the University of Minnesota in Minneapolis, made this discovery the painful way when he struggled through an appeal for funds to upgrade the computerized services at the university's library. "I was trying to explain our hypermedia library project to [potential financial backers] from IBM and a bunch of library personnel, but they were utterly lost," he says.

Discouraged, Hammons returned to his office, where he found a demonstration copy of Powerpoint, a presentation graphics package from Microsoft Corp. "I sat down on this cold turkey, and in one hour, I learned to use it," he says. Over the next two weeks, he created a presentation containing 125 screens to explain and illustrate his hypermedia library proposal.

When the group convened again, Hammons ran the presentation on a personal computer using the program's on-screen presentation feature. "There was a collective bunch of oohs and aaahs," he recalls. The project received funding shortly thereafter.

Graphics add pizzazz

It's been proved time and time again that charts, illustrations and even a splash of color on an overhead transparency can enhance a business presentation. Indeed, sales of presentation graphics packages grew 36% in 1990 to 1.2 million units shipped, according to Gladys Francis, an industry analyst at Dataquest, Inc. in San Jose, Calif.

Some of that growth may have come about because suppliers have begun to create products that businesspeople feel comfortable using. For some executives, the prospect of font selection, color gradations and image scaling is so foreign that they'd sooner write out 1,000 words longhand than fiddle around with software to create an image that might say it all.

While there is a learning curve associated with even the most basic presentation graphics software, it is not nearly as steep as it used to be, according to users and experts.

Many of the newer releases of top-selling software incorporate features intended to make it easier for nonartistic users to create graphical presentations.

Lotus Development Corp.'s Freelance, Software Publishing Corp.'s Harvard Graphics, Microsoft's Powerpoint, Ashton-Tate Corp.'s Applause II, Showpartner FX — a combination of two products from Brightbill Roberts & Co. — and Wordperfect Corp.'s Drawperfect all offer some form of the following:

- A global slide and screen organizer that automatically reorders slides when you change the position of one.
- An outliner with automatic slide generation. This allows the user to create the presentation as a series of outline text headings and subheadings, which are automatically converted to text slides.
- Automatic generation of speaker notes and audience handouts, which are essentially reduced screen images with accompanying text.
- A master slide facility that establishes the design elements — such as logos, background, color and type style — for all of the slides in the presentation. Subsequent changes to the master slide are automatically reflected in all of the individual slides.

These and other high-end packages also offer many sophisticated options, such as the ability to twist, bend and rotate graphics and text as graphical effects; add textured colors; use animation devices and special effects; and gradate colors.

Larry Ashton

For the average business user starting out, however, it is the ease-of-use breakthroughs that represent real progress.

One such feature available on any package is a default mechanism. This chooses effective color combinations, easy-to-read fonts and proper layouts for the user. "The smart defaults are quite good," says Francie Mendelsohn, program manager at the Micro Technology Service of Information Strategies Group in Washington, D.C. "They keep you from doing really dumb things as long as you don't override them."

Some of the newest products go one step further, offering templates — preformatted, stylistically coordinated skeleton presentations combining a variety of different elements — that guide users who aren't artistically inclined. Users can copy and paste their own graphics into the template and replace sample text with their own text.

Lacking creativity

Not all templates are created equal, however. "Sometimes, the actual templates aren't worth much," warns Tom Leech, a San Diego presentation consultant. For instance, they may lack the artistic and graphics taste a good designer would bring to a presentation.

For consistency within a presentation, many users like to have a master slide facility. It was a deciding factor for Sal Merchant, PC systems analyst at Connor Peripherals, Inc. in San Jose, who says he selected IBM's Hollywood over Micrographx, Inc.'s Charisma. While Charisma offers better drawing capabilities and a better clip art library, according to Merchant, it is not a true presentation graphics program, as Hollywood is, nor does it offer the master slide capability.

Merchant says he also enjoys the more sophisticated features Hollywood offers, such as graphics-importing features and the ability to twist and turn text and

Continued on page 71

Radding is a free-lance writer based in Newton, Mass.

INSIDE

How Much Will it Cost? Software is only 29% of the average graphics budget. Page 71.

Alternate Routes Graphics packages are not the only way to add spice. Page 72.

Product Guide A list of multifunction PC presentation graphics software. Page 74.

The Newest Member Of
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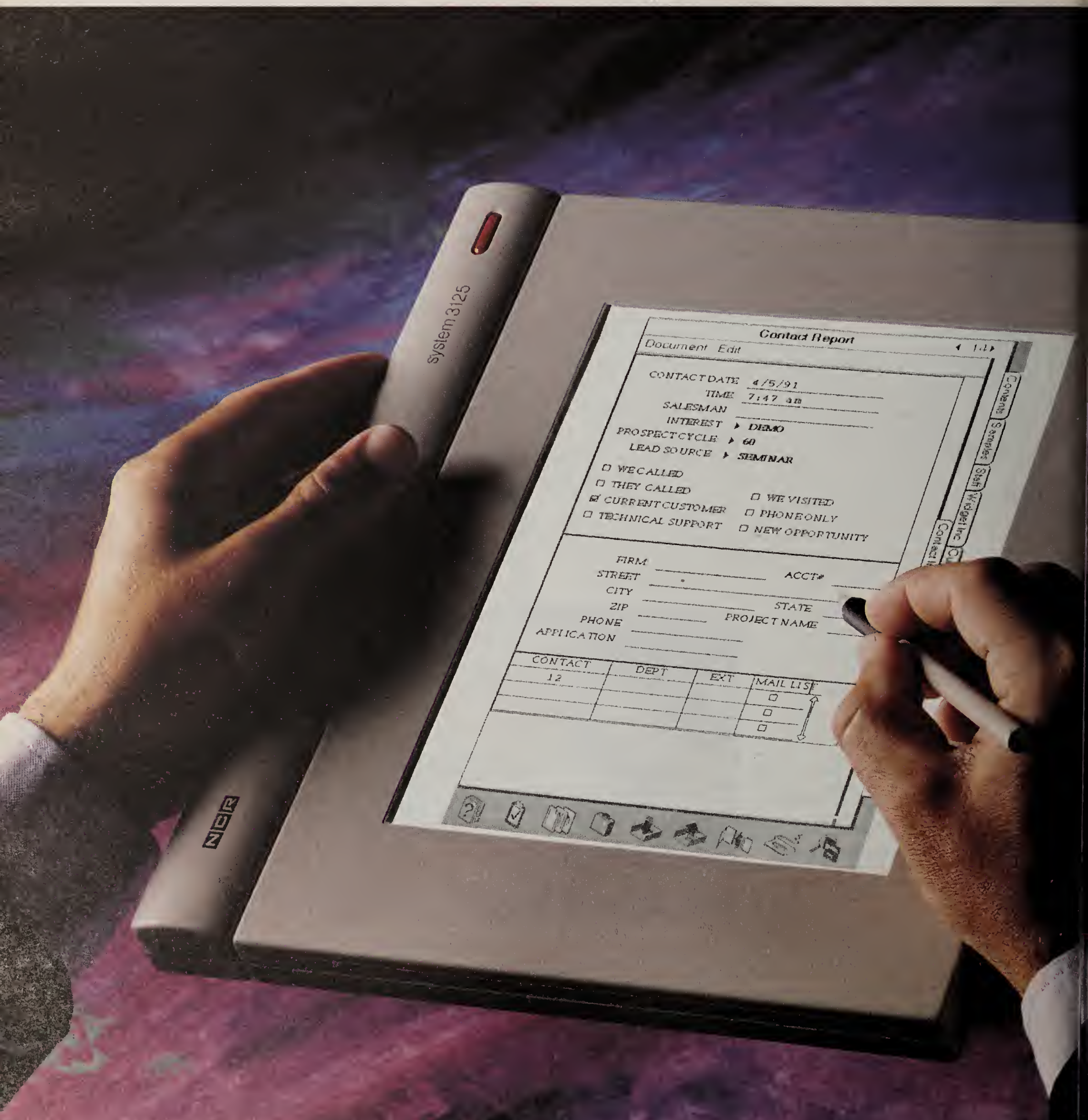

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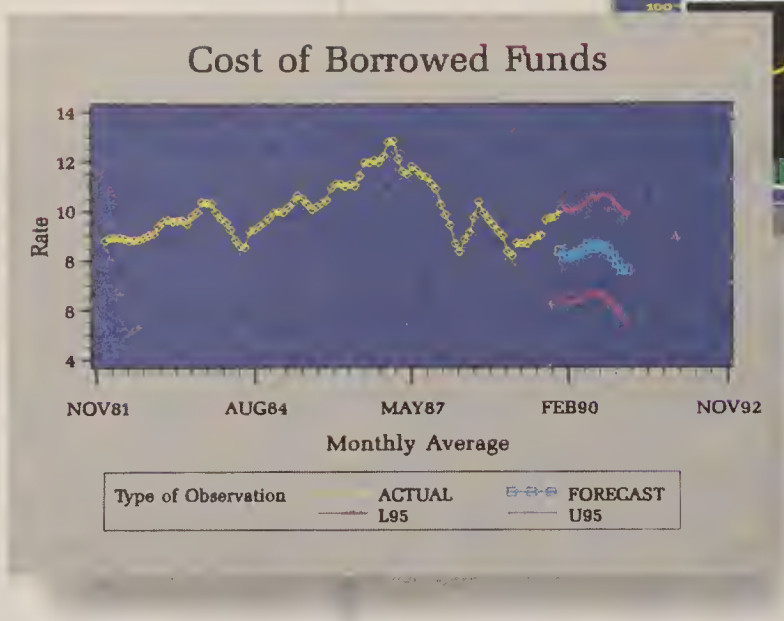

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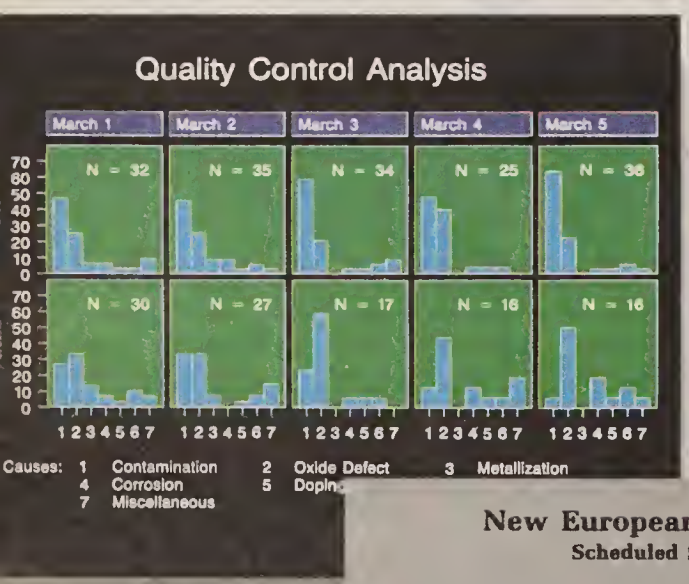

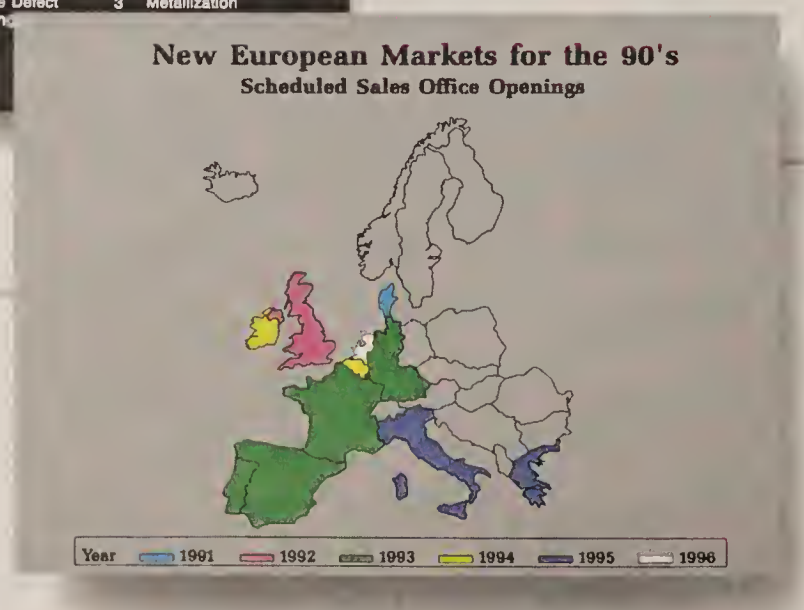

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From page 67

do special-effects shading.

What really attracted Merchant to Hollywood, however, is its compatibility with Microsoft's Windows, which he says makes the package intuitive and easy to use.

Previously, for ease of use, users bought programs that ran on the Apple Computer, Inc. Macintosh. Now, "Windows makes presentation graphics a lot easier for PC users," Leech says.

While DOS-based programs currently outsell Windows-based packages by a long shot, "down the road, everybody will have a Windows product," Francis says.

Already shipping under Windows are Powerpoint, Aldus Corp.'s Persuasion, Hollywood and Computer Associates International, Inc.'s CA/Cricket Presents.

Freelance and Harvard Graphics are expected to ship Windows versions later this year.

Richard Taylor, sales manager at Atlanta-based Clinivision, a hospital software vendor, adopted Windows-based CA/Cricket Presents for his sales staff to use on the road. "We wanted electronic presentation capability, and my staff is familiar with Windows," he says. CA/Cricket Presents gives him on-screen presentation and an automatic screen-generating outliner under Windows.

Taylor and his sales staff create custom sales presentations for each hospital from templates. The presentations consist mainly of bulleted text charts accompanied by the customer logo and some simple line art. For a little pizzazz, they use a venetian-blind effect (as if you are rotating a venetian blind) to move from one screen to another.

Taylor's only complaint about CA/Cricket is its lack of an on-screen demonstration capability similar to that of Harvard Graphics. "With Harvard Graphics, we can produce a video demo file that will run without the [Harvard] software. If we had that, we could create a nice little electronic brochure."

Aside from ease of use, pragmatic features such as text editing, importing graphics and global changes to design elements also frequent users' wish lists. When such attributes are missing, people notice.

Lt. Col. Robert Jaynes, head of the U.S. Army's Enlistment Incentives Program, uses Harvard Graphics for his monthly presentations.

He applauds the product's ease of use — he says users can build charts in 30 to 40 minutes — and says he also likes the control it affords him over sizing, background and color. However, what he would add to the product is the ability to selectively change groups of slides with one command.

Importing and exporting functions are also in demand. Leslie Tyler, president of That Corp. in Natick, Mass., an audio components manufacturer, uses Freelance not only for business financial presentations but also for schematic drawings and light mechanicals.

Tyler is very happy with Freelance's vector graphics, which he says provide better quality output than bit-mapped graphics. Equally important to Tyler is Freelance's linking capability, which allows him to connect his presentation with data in an Ashton-Tate Dbase file. That means he can keep his presentation current by linking it to the updated information residing in Dbase.

The fact is that when it comes to purchasing time, business users would still be wise to choose presentation graphics packages that combine the impressive with the pragmatic — even in the face of multimedia, animation and increasingly sophisticated color.

There will always be people like Ronald Herold, chief executive officer at Hansman Industries, Inc., a precision sheet metal fabricator in Stillwater, Minn. His philosophy is this: "If I can't do it with one finger, I don't want to be bothered."

Herold looked at many of the available programs on the market and decided they all did too much — more than he needed, at least. So he chose a simple graphing program, New England Software, Inc.'s Graph-in-the-Box Executive, which allows users to make graphs easily by providing a large number of predesigned chart types. The software also has data analysis capabilities, which most presentation graphics programs lack.

The package takes care of Herold's needs: Not only does it produce internal reports for his staff, but it is also flexible enough to do sales presentations. •

Must haves

No matter what package you buy, be sure you get at least the basics, says Francie Mendelsohn, program manager at the Micro Technology Service of the Information Strategies Group in Washington, D.C. Her list of necessary features includes the following:

- ☒ A good text editor.
- ☒ Color.
- ☒ A selection of well-designed templates.
- ☒ A variety of type styles and fonts.
- ☒ The ability to import elements from other programs.
- ☒ The ability to resize any graphics element.

CW Chart: Janell Genovese

The medium is the message

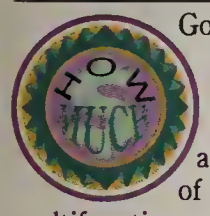
Some graphical elements are more appropriate than others, depending on what you're presenting. Here are some ways to best use popular graphical elements:

- ☒ Use tables when the audience needs to know exact numerical values.
- ☒ Use flowcharts to condense a detailed series of activities into a single chart.
- ☒ Use line charts to show movement or change, not specific data values.
- ☒ Use pie charts to show share or percentages.
- ☒ Use bar and column charts to make comparisons and show change.

Source: *Power Graphics, Your Guide to Intelligent Presentations*
By Kathryn Alexandrini, professor at California State University in Los Angeles

Graphics equipment can fit any purse size

BY DAN BAKER



Good-quality graphics *can* be produced on a low budget. For an average price of $495 to $695, multifunction presentation software can create many types of charts, graphs and slide shows and can also perform sophisticated draw and paint functions.

However, the software is usually only a small part of the budget. In a recent survey of large corporations conducted by Computer Graphics Research Institute in Sudbury, Mass., software represents only 29% of the average $68,000 that firms spend annually on presentation graphics.

The biggest expenditure is the hardware platform, which accounts for 43% of a company's presentation graphics budget. Platforms can range from personal computers to workstations to dedicated systems.

Peripherals — including printers, display devices, storage and input devices — account for one-fifth of expenditures, and 7% is allocated to other products or services, such as slide processing and consulting.

For economical color hard copy, the best choice is the color ink-jet printer. This type of printer, priced from $1,300 to $3,000, sprays tiny droplets of color ink onto the page and gives a resolution in the range of 150 to 200 dot/in.

Another low-cost choice is to project images from the PC display onto a wall via LCD projection panels. Because the projected image is slightly grainy and color is limited, LCD projection panels are not suitable for high-resolution needs, but they are inexpensive and easily ported for off-site demonstrations.

LCD projection panels require a PC as well as an overhead projector and are priced from $800 to $1,500. There are at least six major vendors of these systems: Computer Accessories Corp., Dukane Corp., Eastman Kodak Co., In Focus Systems, Inc., Sharp Electronics Corp. and Telex Communications, Inc.

If it is important to project a high-resolution image, however, you'll need to venture into the pricier territory of a CRT-based projector. These $6,000 to $23,000 projectors allow the high-resolution image on a computer display to be faithfully projected on the wall with virtually no loss of sharpness.

For high-quality color hard copies of presentation materials, thermal transfer printers are the most popular choices among graphics professionals. They offer 300 dot/in. resolution and advanced dithering technology, which uses halftoning and color combinations to give the perception of more color.

Thermal transfer printers cost $5,000 and up, depending on other features desired. For example, Spectra*Star printers from General Parametrics Corp. require an extra $1,000 for special reduced instruction set computing processors that can double printer throughput speed.

Thermal transfer printers work like a combination of a dot matrix printer and rub-on lettering: The thermal head transfers color wax from a thin plastic film ribbon onto a page. The color ribbon and special paper cost about 50 cents per page; transparencies cost about $1.65 per page.

If slides are the chosen output medium, users can either invest in a $6,000 to $9,000 film recorder or go through a service bureau (see chart above right).

Service bureaus convert the presentation graphics images either to color slides or to hard copy prints used in the actual presentation. Prices start at $12 per slide and $15 per color hard copy print.

Most of the major presentation graphics packages provide a utility to convert the image on the screen to a suitable format to be stored on a disk and sent to a service bureau. Alternatively, the image can be sent to the bureau via modem.

When confidential information needs to be protected, or tight production control needs to be maintained, users may want to produce slides in-house with a film recorder. These $6,000 to $9,000 machines use a computer-controlled light beam to trace images on 35mm film.

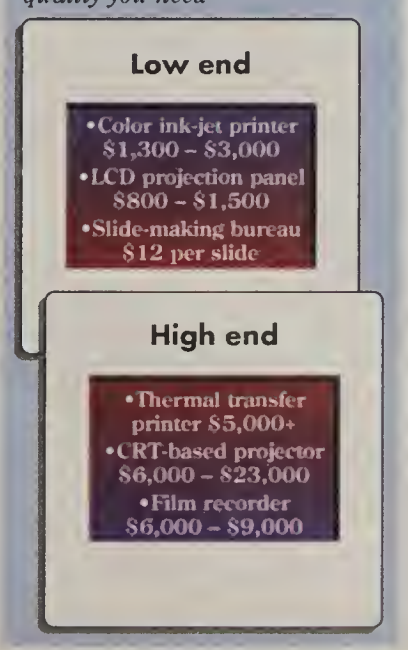
With color images, keep in mind that a normal 8½- by 11-in. image scanned at 300 dot/in. with 64 gray scales can consume as much as 6M bytes of storage. A typical color image would require 25M bytes.

Vendors suggest having plenty of storage available for color images.

Users of color images may also need to bulk up their PC displays: An IBM Video Graphics Array monitor may not be sufficient for large image files. •

Output alternatives

You can spend a lot or a little on output, depending on the quality you need



Source: Computer Graphics Research Institute, Inc.

National slide-making service bureaus

Magicorp Ltd.
Tarrytown, N.Y. (800) 367-6244

Genigraphics Corp.
Shelton, Conn. (203) 926-8808

Autographix, Inc.
Burlington, Mass. (800) 962-3400

Source: Computer Graphics Research Institute, Inc.

Baker is research director of Computer Graphics Research Institute in Sudbury, Mass.

Hazards apparent on alternate routes

Current software offers graphics elements — but beware the drawbacks

BY ALAN RADDING

Just because you want to jazz up your presentations doesn't mean you have to purchase a presentation graphics program. You could choose to use graphically oriented word processing packages and spreadsheets or purchase a specialized painting or drawing program.

New word processors offer a variety of type styles and fonts, along with what-you-see-is-what-you-get layout capability, to create a variety of attractive tables and bulleted charts. Some word processors, such as the latest release of Wordperfect Corp.'s Wordperfect and most of the other high-end word processors, can even import graphs and images.

Similarly, many spreadsheets of recent vintage provide very advanced graphing and layout capabilities, including color and three-dimensional capabilities, sophisticated text editing and a variety of type styles and fonts.

NEITHER WORD PROCESSORS nor spreadsheets offer the range of output and display options normally found in presentation graphics software.

There is also a variety of dedicated drawing, painting and graphing packages that allow the user to produce truly dazzling, artistic visuals.

However, all of these tools have their limitations when it comes to assembling business presentations.

Probably the chief drawback to using painting and drawing packages is the skill requirement. These programs not only take time to master, but they also require a certain amount of artistic talent.

Working with the graphics available on word processors and spreadsheets raises a different set of issues. One significant limitation to such packages is output. Neither type of software offers the range of output and display options normally found in presentation graphics software.

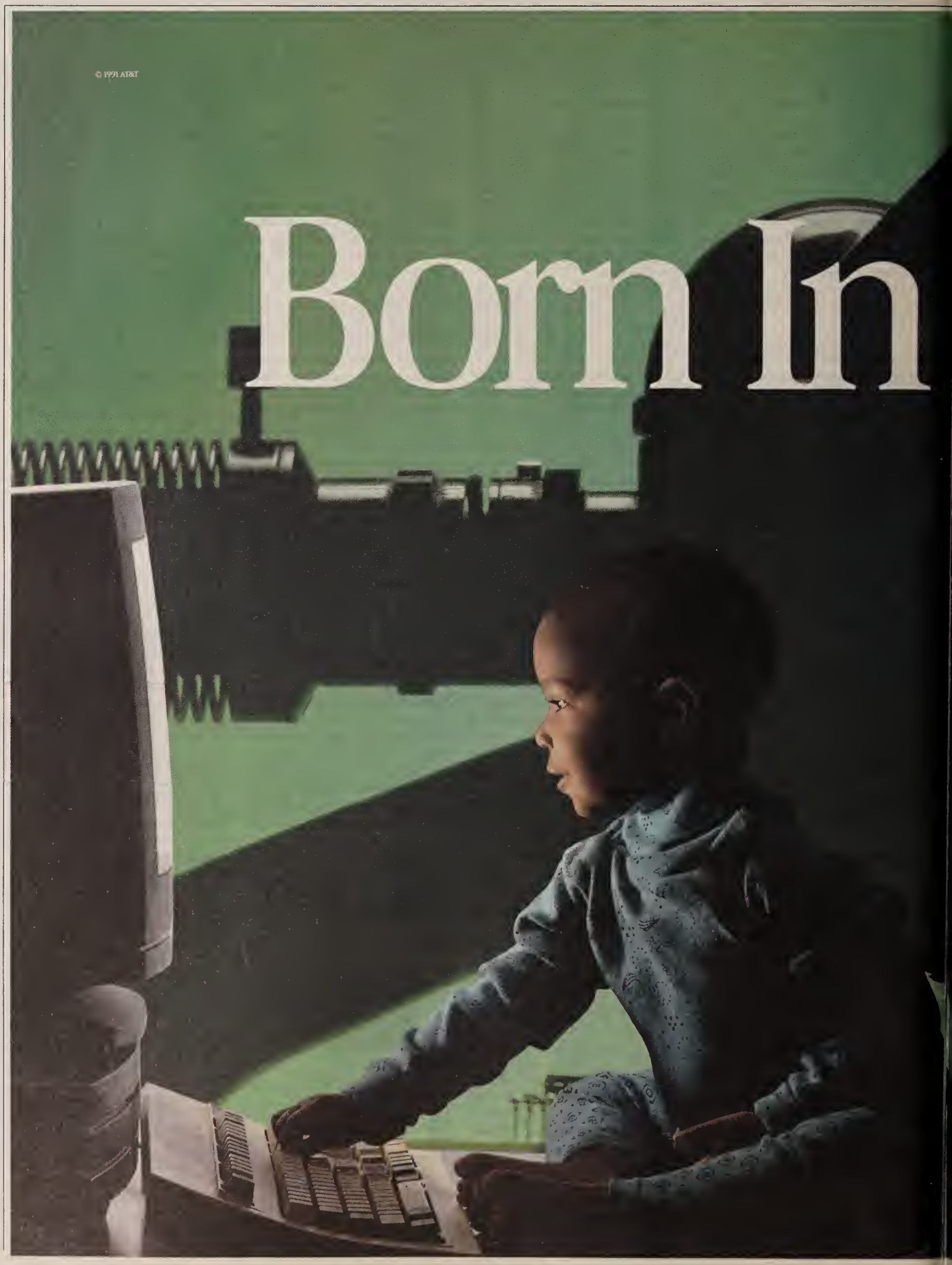
For example, standardized output to a slide service bureau is not typically available with business packages that include graphics functions.

Such packages also usually lack the ability to create images from a blank screen. They can import line art but not create it. This means that if a user wants to generate more than basic charts and graphs, he must move back and forth between packages to achieve the required effects.

The most important limitation, however, is the lack of global control and consistency. With any of these alternatives, a user must be either very skilled or very patient in order to coordinate all the types, graphics, colors, backgrounds and borders. Presentation graphics programs, on the other hand, integrate all the capabilities into one package and give the user consistent control over all of the elements.

"You can make presentations with the other programs, but [presentation graphics programs] are really suited to it," says Dan Baker, director of the Computer Graphics Research Institute in Sudbury, Mass.

In the end, it isn't necessary to make an either/or decision. Users who prefer the text charts from their word processing packages, graphs from their spreadsheet or dazzling images created with an advanced drawing package can import those elements into the presentation graphics program. The master slide feature can then enforce a consistent look on all of the screens in the presentation. •



For graphics sophisticates only

BY ALAN RADDING

Once people get beyond the learning — and often, relearning — stages, ease of use becomes a less interesting topic.

Because users of presentation graphics packages do not typically use them with any great frequency, they say the ability to easily relearn the package when they need to use it is important.

However, after they get a few presentations under their belts, some users start looking around for features such as image rotation, sophisticated color and animation.

Victoria Kolyvas, a financial analyst at Connecticut Natural Gas Corp. in Hartford, Conn., says she was very happy when she found 35mm Express, a relatively obscure product from Business & Professional Software, Inc. She purchased 35mm Express immediately when she learned it had the capability to use images in place of the standard bars in a bar chart.

Kolyvas was even happier, she says, when she discovered that the product was easier to use than Software Publishing Corp.'s Harvard Graphics, which her company already had.

In one day, for instance, Kolyvas knocked out a 110-slide presentation by establishing the background and framework with a master slide and reusing the same slides with small modifications.

However, now that she has Microsoft Corp.'s Windows installed on her personal computer, Kolyvas is reviewing her presentation graphics options again. "I'm not disenchanted with 35mm Express, but I want to see what's current," she says.

Similarly, John O'Brien, lead application analyst at Motorola, Inc.'s Computer Services Customer Service Group, says he misses the color capabilities he used to enjoy on Microsoft's Powerpoint.

A year ago, O'Brien switched to Computer Associates International, Inc.'s CA/Cricket Presents on the Apple Computer, Inc. Macintosh because he preferred its drawing capabilities, outliner, text editing feature and spell checker.

However, O'Brien voices some lingering regrets. "I miss Powerpoint's special-effect color backgrounds," he says. "Cricket only gives plain color backgrounds." Also, if he needs to rotate a drawing, he must return to Apple's Macdraw.

Some people use two products: one for the sometimes difficult-to-use sophisticated features and one for everyday use.

Jack Dean, manager of proposal development at Aerojet Propulsion Division in Sacramento, Calif., uses Aldus Corp.'s Persuasion when he wants to get fancy, but "in 80% to 90% of the cases," he says, a simpler product can meet his needs — namely More II, a Macintosh-based presentation graphics product from Symantec Corp.

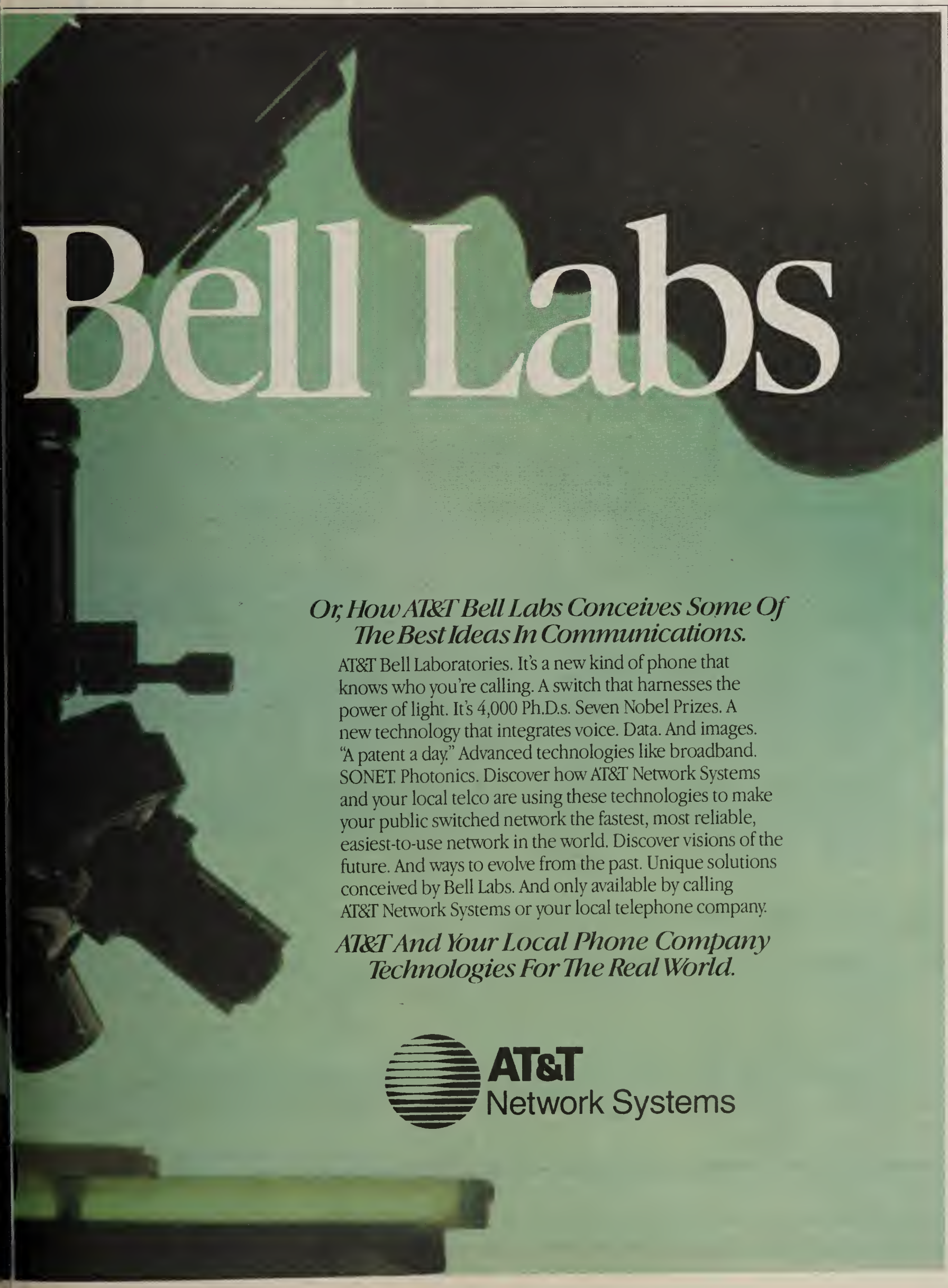
"I use Persuasion [on the Macintosh] when I want to get really artistic — it really gives pizzazz," he says. For example, colors can be gradated from light to dark and graphics stretched to change perspective. •

Presentation tips

Here are some ground rules to help you use graphics to build a strong business presentation, says Kathryn Alexandrini, professor at California State University in Los Angeles

- Maintain consistency in style, size, color, typeface and format.
- Use a sans serif typeface for projected graphics and a serif typeface for printed graphics.
- Use color coding when the meaning of a color is well-established and relevant to the topic of the image.
- Use color cuing to organize the image and guide attention to what is important or to group-related items.
- Display the primary object or important visual in 3-D to make it stand out.

Source: *Power Graphics, Your Guide to Intelligent Presentations*



PC presentation graphics software

VENDOR	PRODUCT	OPERATING SYSTEM SUPPORTED	MEMORY/DISK REQUIREMENTS	MAJOR FUNCTIONS	TYPES OF CHART TEMPLATES	NUMBER OF CHARTS PER PAGE/ FONTS PER PAGE	READY-MADE IMAGES	IMPORTED/EXPORTED DATA	IMPORTED/EXPORTED FILE FORMATS SUPPORTED	OUTPUT DEVICES SUPPORTED	NUMBER OF FONTS	SLIDE SERVICES SUPPORTED	SCREEN RESOLUTIONS SUPPORTED	PRICE/NETWORK VERSION
Advanced Graphics Software, Inc. (408) 749-8620	Slidewrite Plus	DOS	433K/Hard disk required	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter, pie, area, text	99/16	420+ accessory packs, science figures	Imports Lotus' 1-2-3, Excel, Dbase, ASCII	Exports TIFF, CGM, HPGL, EPS	Printers, plotters, cameras	16 scalable	Any that support SCODL, LL, EPS	CGA, EGA, VGA	$445/ $1,500
Aldus Corp. (206) 622-5500	Aldus Persuasion for Windows 3.0	Macintosh, Windows 3.0	2M/20M hard disk required, 40M recommended	Drawing, chart making, layout, slide making, multimedia, on-screen presentations	Bar, line, scatter, pie, area, text, vertical column, high/low, table, user-customized	Unlimited	100+ clip art images, 48 background images	Lotus' 1-2-3, Excel, Displaywrite, Multimate Advantage II, Windows Word, etc.	TIFF, CGM, HPGL, ASCII text only, DCA format, RTF	Printers, 35mm slides, color and black-and-white transparencies	2 scalable	Autographix, Magicorp, Genigraphics	EGA, VGA, Super VGA, IBM XGA, IBM 8514/A	$495
Ashton-Tate Corp. (213) 329-9989 (800) 437-4329	Applause II	DOS, certified to run under Windows 3.0	512K/4M for program, 1.5M for data cache, 1.5 for optional clip art	Chart making, slide making, on-screen presentations	37 chart types, including bar, line, scatter, pie, area, text, 3-D, high/low, close, organizational	Unlimited	700 clip art images, 50 background images, 46 starter charts	Imports Lotus' 1-2-3, Excel, Dbase, ASCII, Framework	Exports CGM, HPGL, SCODL, PCL, GX2, GPS, imports GMF, DIF, CGM, PCX, TIFF	Printers, plotters, film recorders, video devices	8 scalable bit stream, works with additional bit stream fonts	Ashton-Tate Graphics Service	CGA, EGA, VGA, XGA, Hercules, IBM 8514/A	$495/$375 for single user, $995 for up to five users
Bloc Publishing Corp. (305) 445-0903	3-D Charts to Go	Windows 3.0	Enough to support Windows, real, standard and enhanced modes/452K without clip art, 1.5M with clip art	Chart making, on-screen presentations	Bar, line, pie, area	10/Unlimited	78 clip art images, 8 foreground, 8 background images, 17 patterns	Imports Lotus' 1-2-3, Excel	WMF, PCX, BMP, IMP	Any printers supported by Windows	10 non-scalable	None	CGA, EGA, VGA, monochrome	$99.95
Business & Professional Software, Inc. (617) 494-1155	35mm Express	DOS 2.0 or higher	256K required, 512K recommended/Hard disk required	Drawing, chart making, layout, slide making, on-screen presentations	Bar, line, pie, area, text	32/Unlimited	100 clip art images included, works with additional packages	Lotus' 1-2-3, imports Lotus Symphony	Imports CGM, WKI/WKS, exports AMF, BGL, GEL, HPGL, WPG, etc.	Printers, slide makers, image recorders	2 non-scalable	Magicorp, MGI, other BPS authorized service bureaus	CGA, EGA, VGA	$495/ $2,495 for up to six users
Computer Associates International, Inc. (215) 251-9890	CA Cricket Presents	Windows 3.0, Macintosh version available	2M/3M - 5M	Drawing, chart making, layout, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, stacked bar, column	Unlimited	70 clip art images	Lotus' 1-2-3, Excel, GMF	TIFF, CGM, WMF, DIF, EPSF, MSP, PCX, SYLK	All those supported by Windows 3.0	35 scalable typefaces	Autographix	All Windows 3.0-compatible	$199
Computer Support Corp. (214) 661-8960	Arts & Letters Graphics Editor	Windows 3.0	1M/8M - 9M	Drawing, chart making, layout, slide making	Bar, line, scatter, pie, area, text, pictograms	Unlimited	5,000 clip art images, any of which can be used as background	Lotus' 1-2-3, Excel	TIFF, CGM, HPGL, EPS, WMF, SCODL	All those supported by Windows 3.0	70 scalable	Any that support SCODL or EPS files	CGA, EGA, VGA, any supporting Windows 3.0	$695/ $2,420 for server and five nodes
Corel Systems Corp. (613) 728-8200	Corel Draw	OS/2, Windows 3.0, Unix, CTOS	1M/1.44M hard disk required	Drawing, on-screen presentations	NA	NA	750+ clip art images, 3,000+ symbols	Lotus' 1-2-3, Excel	PCX, TIFF, EPS, GEM, HPGL, CLTM, PICT	All those supported by Windows	153 scalable	Genigraphics, Matrix, any that support SCODL	EGA, VGA	$695
Dicomed, Inc. (612) 895-3000	PresenterPC	DOS	640K/20M hard disk minimum	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, high/low, close, XY charts, etc.	Unlimited	Up to 1,200 clip art images	Lotus' 1-2-3, Excel	DIF, ASCII, SCODL	PCR, QCR, HP Laserjet, dot matrix printers, etc.	485 scalable	Dicomed authorized service bureaus	EGA, VGA, IBM 8514/A	$495
Digital Research, Inc. (408) 649-3896	Presentation Team, Version 2.0	DOS	640K/1M	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, symbol graphs	Limited only by memory	300+ clip art images, maps and organizational charts	Imports Lotus' 1-2-3, Excel, Quattro, Supercalc	GEM, CGM, PIC, DXF, WFM, IMG, PCX, TIF	Printers	9 non-scalable provided, additional 200+ from bit stream	Magicorp, Matrix	CGA, EGA, VGA, Genius, AT&T DEB, Hercules, Genoa Super VGA	$495
Fox Software, Inc. (419) 874-0162	Foxgraph	DOS	512K/800K	Chart making, slide making	Bar, line, pie, area, 32 other graph types	1/1	None	Imports Lotus' 1-2-3, Excel, Dbase, ASCII	Exports TIFF, IMG	Printers, plotters, slide makers	1 scalable	Direct output to most digital film recorders	CGA, EGA, MCGA, VGA, Hercules	$295
IBM (800) 426-7699	Hollywood	Windows 3.0	1.6M, 2M recommended/4.5M, 8.5M for clip art and templates	Drawing, painting, chart making, layout, slide making, on-screen presentations	Bar, line, scatter, pie, area, text	Unlimited	100+ clip art images, 14 templates, 24 chart galleries	Lotus' 1-2-3, Excel	TIFF, CGM, MSP, PIC, PCX, MAC, BMP, GIF, imports DXF, HPGL, WMF, exports GIF, EPS	All those supported by Windows 3.0	3 scalable typefaces, 8 Window system fonts	Magicorp	All Windows resolutions except CGA	$495
	Storyboard Live Version 1.0	DOS Version 3.3 or higher, MS-DOS Version 3.3 or higher	512K, excluding DOS/4.5M	Painting, multimedia, on-screen presentations	Bar, line, pie	NA	800 clip art images, 34 animation sequences	None	TIFF, CGM, PCX, GIF	Printers	13 non-scalable	None	EGA, VGA, 640 by 480 to 256	$495
Interactive Solutions Corp. (206) 376-5085	Chartpro	DOS, Unix	640K/2M	Drawing, chart making	Bar, line, scatter, pie, area, text, control charts	Unlimited/60	None	Lotus' 1-2-3, Excel, Dbase, ASCII	TIFF, HPGL, HP PCL	All HP plotters and printers	60 scalable	RGB	CGA, EGA, VGA, terminals	$495, PC version only
International Microcomputer Software, Inc. (415) 454-7101	Graphics Pak	DOS	640K/1.5M	Drawing, painting, chart making, layout, slide making, on-screen presentations, graphics file conversion	Bar, line, scatter, pie, area, text	4/20	150 clip art images	Lotus' 1-2-3, Excel, ASCII	HPGL, PCX	9- to 24-pin dot matrix printers, HP Laserjet, HP plotter	21 scalable	None	CGA, EGA, VGA, Hercules	$249.95
Kinetic Presentations, Inc. (502) 583-1679	Words, Graphs & Art	DOS	640K/2M hard disk required	Drawing, chart making, layout, slide making	Bar, line, scatter, pie, area, text	Unlimited	300+ images, including 3-D maps	Lotus' 1-2-3, Excel, Dbase, ASCII, DIF	CGM	Over 150, including printers and plotters	11 scalable	Any that support CGM, LL, GPC, SCD	CGA, EGA, VGA, Number 9	$495/ $1,095 for three nodes
Knowware (303) 444-7224	Stats from Knowware	DOS	640K/1M	Chart making, statistic management, on-screen presentations	Line	100/5	None	ASCII text only	None	Printers	5 scalable	None	CGA, EGA, VGA	$575/$725 for site license

The chart lists personal computer presentation graphics software for the business user. It does not include spreadsheets, word processing packages or specialized software that performs only drawing, painting or slide making.

The companies included in this chart responded to a recent survey conducted by *Computerworld*. When a vendor is unable to provide specific information about its product, the abbreviation NP (not provided) is used. When a question does not apply to a vendor's product, the abbreviation NA (not applicable) is used. Contact vendor for further product information.

VENDOR	PRODUCT	OPERATING SYSTEM SUPPORTED	MEMORY/DISK REQUIREMENTS	MAJOR FUNCTIONS	TYPES OF CHART TEMPLATES	NUMBER OF CHARTS PER PAGE/ FONTS PER PAGE	READY-MADE IMAGES	IMPORTED/EXPORTED DATA	IMPORTED/EXPORTED FILE FORMATS SUPPORTED	OUTPUT DEVICES SUPPORTED	NUMBER OF FONTS	SLIDE SERVICES SUPPORTED	SCREEN RESOLUTIONS SUPPORTED	PRICE/NETWORK VERSION
Lotus Development Corp. (617) 577-8500	Freelance Graphics for DOS	DOS	640K/5M	Drawing, chart making, layout, slide making, on-screen presentations, presentation organization and management, outlining	Bar, line, scatter, pie, area, text, bar/line, bar/line/table, 3-D XYZ, table	Unlimited/8	1,000+ clip art images, 90 background images, 50+ chart templates, also works with clip art from third parties	Imports Lotus' 1-2-3, Excel, Dbase, ASCII text/numbers, CGM, GMF	TIFF, CGM, exports HPGL, DRW, FCT, EPS, GX2	Dot matrix and thermal printers, color and black-and-white laser printers, plotters, slide devices and bureaus, PC screen, Paintjet	Device-dependent	Autographix, Magicorp.	CGA, EGA, VGA	$495 plus $99 for upgrades through Sept. 1991/$795 for server, $495 per node
	Freelance Graphics for OS/2	OS/2	4M/Hard disk required	Drawing, chart making, layout, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, high/low, close/open, 3-D bar, mixed charts, bar/line, line/area, line/bar/area	Unlimited	500+ clip art images, 30 interactive presentation template sets, also works with clip art from third parties	Imports Lotus' 1-2-3, Excel, Dbase, BMP PM Metafiles, ASCII numbers/text, DRW, PFL	TIFF, CGM, exports HPGL, PM Metafiles, SHW, DRW, PFL	All those supported by OS/2	OS/2 dependent	None	EGA, VGA	$595
Microsoft Corp. (800) 426-9400	Powerpoint for Windows	Windows 3.0	1M, 2M recommended/12M	Drawing, chart making, layout, slide making, on-screen presentations, word processing	Text	Limited only by memory/ Unlimited	400+ clip art images, 40 background images	Lotus' 1-2-3, Excel, Dbase, SYLK, Comma or Tab Delimited	TIFF, CGM, HPGL, Lotus' PIC, Micrographx' DRW, EPS, WMF	All those supporting Windows	10 non-scalable	Genigraphics, etc.	EGA, VGA, Windows-compatible	$495/$395
New England Software, Inc. (203) 625-0062	Graph in the Box Release 2	DOS	128K/300K	Chart making	Bar, line, scatter, pie, area, step	3/1	None	Imports ASCII and DIF	Exports CGM, HPGL, Postscript, DIF, ASCII	Printers, plotters	1 non-scalable	None	CGA, EGA, VGA, MCGA, MDA, Hercules	$139.95/ $595 for up to 50 users
	Graph in the Box Executive	DOS	9K/1M hard disk required	Chart making	Bar, line, scatter, pie, area, text, spline, trend, high/low, organization	4/10	None	Imports ASCII and DIF	Exports CGM, HPGL, PIC, Postscript, PCX, DIF, ASCII	Printers, plotters	10 scalable	None	CGA, EGA, VGA, MCGA, MDA, Hercules	$299.95/ $995 for up to five users
	Graph in the Box Analytic	DOS	130K/300K	Chart making	Bar, line, scatter, pie, area, step, spline, trend	3/1	None	Imports ASCII and DIF	Exports CGM, HPGL, Postscript, DIF, ASCII	Printers, plotters	1 non-scalable	None	CGA, EGA, VGA, MCGA, MDA, Hercules	$199.95/ Based on licensing agreements
Paperback Software International, Inc. (415) 644-2116, (800) 255-3242	VP Graphics	DOS	384K/1M	Drawing, chart making, slide making	Bar, stacked bar, line, pie, text, XY charts	Unlimited	875 clip art images	Lotus' 1-2-3, VP Planner	HPGL, PIC, DIF	Screen, printers, plotters, Postscript printers	6 non-scalable	None	CGA, EGA, VGA, Hercules, Monochrome	$124.95
Softkey Software Products, Inc. (416) 602-5500	Key Chart 2000	DOS	640K/1M	Chart making, layout, slide making	Bar, line, scatter, pie, area, text	4/NP	NP	Lotus' 1-2-3, Excel, Dbase	TIFF, GCM	Printers, plotters	10 non-scalable	Key slide maker	EGA, VGA	$39.95
Software Publishing Corp. (415) 962-8910	Harvard Graphics 3.0	DOS	438K on a 640K system, 1M recommended/11M	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, 55 combination templates, high/low, organizational	Unlimited	500 symbols, 19 background images	Lotus' 1-2-3, Excel, Dbase, ASCII, delimited ASCII	CGM, HPGL, PCX, EPS, Professional Write	Printers, plotters, film recorders	15 scalable	Autographixs	EGA, VGA	$595/ $2,115 for five nodes, $7,995 for 20 nodes
Sumak Enterprises, Inc. (508) 443-5970	Quickgraph Plus	DOS, Windows 3.0	640K for system, 525K for DOS/3M	Chart making, slide making, on-screen presentations, sideways printing of graphs on multiple pages	Bar, line, scatter, pie, area, text, forecast, bubble, 3-D overlay	Unlimited/6 for DOS, unlimited for Windows	None	Lotus' 1-2-3, Excel, Dbase, ASCII text, ASCII delimited	TIFF, Windows bitmap	All those supported by Windows	8 scalable	Any that support PCX, TIFF	CGA, EGA, VGA, MCGA, SVGA	$149.95/ NP
Symsoft Corp, (702) 832-4300	Hotshot Presents	DOS	640K/360K floppy plus hard disk	Painting, slide making, on-screen presentations	Text	NA	Bullets	Imports Lotus' 1-2-3, Excel, Dbase	TIFF, PCX, IMG, TGA, SCODL	LCD Projection panels, matrix slide makers		Any that support SCODL-compatible services, Matrix, Mapro	CGA, EGA, MCGA, VGA	$249
System Generation Associates, Inc. (602) 778-4840	Presentation Maker	DOS, Macintosh, Windows 3.0	640K/20M	Chart making, slide making, overhead generation	Bar, line, scatter, pie, area, text	1, 4 indirectly/22	180 clip art images, 140 background images	Lotus' 1-2-3, Excel, Dbase, any ASCII printer file	CGM, HPGL, TGA, PICTII, SCODL, Windows 3.0, CUT, GIF, PCX, PIC	Black-and-white and color printers, digital film recorders	22 scalable	Direct output to most digital film recorders	CGA, EGA, VGA, Hercules, Targa-16	$1,900 (software only)/ $6,400 includes Polaroid's CI-3000 digital film recorder
Tilcon Software Ltd. (613) 226-3917, (800) 665-5928	Graphicway	DOS, QNX	512K/6M	Drawing, chart making, layout, slide making, on-screen presentations, developer version	Bar, line, scatter, pie, area, high/low	9/32	500 clip art images, 128 chart templates	Lotus' 1-2-3, Dbase, ASCII, ASCII delimited, RIPCAM	TIFF, HPGL, PCX, EPS	Printers, plotters film recorders	32 scalable	Any that support PCX, TIFF	CGA, EGA, VGA, Hercules	$495, $695 for developer version/ $599, $999 for developer version, 1 node
Timeware (415) 726-7600	Showtext	DOS	460K/600K	Chart making, tables, organizational charts, Gantt charts	Text, tables, organizational charts, Gantt charts	4/13	None	ASCII	HPGL, text, PCL	Printers, plotters	13 scalable	None	CGA, EGA, VGA, Hercules	$99 for Version 3.0, $149 for Version 4.0/$499
Trajectory Software, Inc. (201) 447-5200	Lex-Graph	DOS, VMS	640K/3M hard disk required	Drawing, painting, chart making, layout, slide making, on-screen presentation	Bar, line, scatter, pie, area, text, Gantt charts	12/Unlimited	200 symbols	Lotus' 1-2-3	HPGL	Terminals, printers, plotters	11 scalable	None	EGA, VGA	$495/ $495 + based on number of users
Wordperfect Corp. (800) 451-5151	Draw Perfect	DOS	384K/Hard disk recommended	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter, pie, area, text, bar/line, geographic maps	Unlimited/30	5 clip art libraries	Lotus' 1-2-3, Excel, Quattro, Quattro Pro, Plan Perfect	TIFF, CGM, HPGL, PIC, PCX, IMG, EPS, SCD, DHP, DXF, Gem, WPG, etc.	Printers, plotters, film recorders	30 scalable	Supports all of them	EGA, VGA, monochrome	$495/$495
Zenographics, Inc. (714) 851-2266	Pixie 2.3	Windows 3.0	640K/2M	Drawing, chart making, slide making, on-screen presentations	Bar, line, scatter pie, area, text, line/bar, table, error	Unlimited	450 clip art images	Lotus' 1-2-3, Excel	CGM, IMA, PIC, WMF, SCODL	All those supported by Windows	Unlimited scalable	Supports 100 +	CGA, EGA, VGA	$295/$295 per node
Zsoft Corp. (404) 428-0008	PC Paintbrush IV Plus	DOS	640K/1M	Drawing, painting, image processing and paint	None	NA	27 tile backgrounds, 9 PCX images	None	TIFF, PCX	Printers, plotters	20 bitmap, 4 scalable outline typefaces	Any that support PCX, TIFF	CGA, EGA, VGA, Extended VGA, MCGA, Hercules	$199
	Publisher's Paintbrush	Windows 3.0	2M recommended/ 5.8M	Drawing, painting, multimedia, image processing and paint	None	NA	26 tile backgrounds, 6 PCX images	None	TIFF, TGA EPS, GIF, PCX, BMP, MSP, RAW	All those supported by Windows	33, outline fonts are scalable	Any that support PCX, TIFF, GIF, EPS, Targa, MSP	EGA, VGA, Extended VGA, Hercules	$495

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COMPUTERWORLD

The Newsweekly of Information Systems Management

Cigna re-engineers itself

What does a reinsurance firm get when it replaces 85% of its systems and organizes itself along team lines? Annual savings of $1.5 million and quick delivery of information to line staff

BY ALAN J. RYAN

Two years ago, when Cigna Corp. began a search among its business units for one to pilot the insurer's first re-engineering effort, Cigna RE Corp. signed up. It was not so much the spirit of volunteerism that drew Cigna RE to pilot the re-engineering project. Rather, it was the spirit of need, says Francine M. Newman, president of Cigna RE. Newman says she thought being involved in the re-engineering efforts of $18.2 billion parent Cigna would be a good way to replace outdated computer systems.

She got her new systems — and a whole lot more, including $1.5 million in annual operations savings. That's because the point of re-engineering, by Cigna's standards, was to use information technology to achieve dramatic change and improvement in overall business operations and performance.

Bloomfield, Conn.-based Cigna RE — which is in the business of reinsurance, or insuring other insurance carriers — wanted to move away from its product line organization to enable more areas within Cigna RE to share information. More importantly, it needed to find a way to improve its customer service while cutting costs.

"If you took a look at where we were on the cost curve of providing service and compared us to the largest deliverers of reinsurance, our expense curve was above theirs," says Ian W. Drewette, head of systems at Cigna RE and vice president at Cigna Systems Corp., the information systems unit of Cigna Corp.

Although $191 million Cigna RE maintained its philosophy that its higher costs were justified because it could provide higher quality service than its competitors, that reasoning wasn't enough in a competitive world, Drewette says.

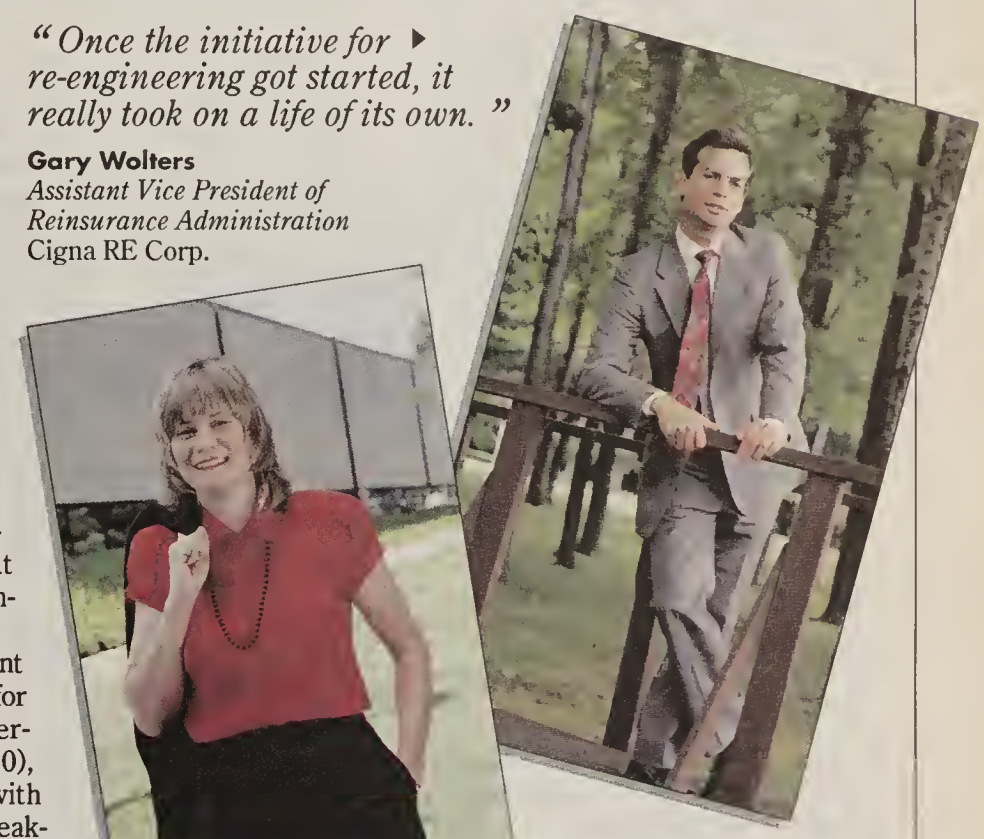
So, with the backing of a parent that was big on re-engineering (for an inside look at Cigna's re-engineering philosophy, see story page 80), the reinsurance group proceeded with its $3.2 million plan. (For a cost breakdown, see page 80). Gary Wolters, assistant vice president of reinsurance administration at Cigna RE, says the investment came mostly from the reinsurance company's 1990 operating expenses, with systems help coming from Cigna Systems.

"Once the initiative for re-engineering got started," Wolters says, "it really took on a life of its own." In fact, 15 other re-engineering projects have recently been sanctioned throughout Cigna. Additionally, the Cigna Systems Re-Engineering Group has been formed as part of Cigna's IS unit; its charter is to oversee re-engineering efforts corporatewide.

Ryan is a *Computerworld* senior writer, features.

"Once the initiative for re-engineering got started, it really took on a life of its own."

Gary Wolters
Assistant Vice President of Reinsurance Administration
Cigna RE Corp.

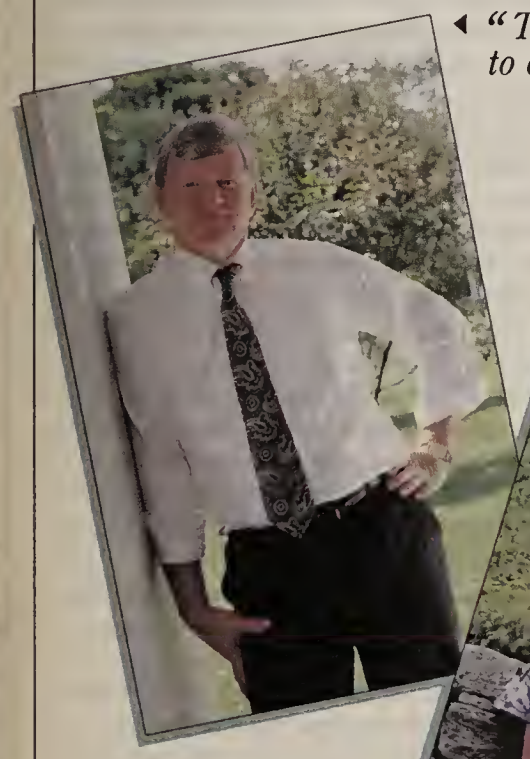


"We essentially have 100% participation."

Mary Ellen Sniegowski
Director of Financial Reporting and Systems Administration
Cigna RE Corp.

"The business needs to own the project."

Ian Drewette
Vice President
Cigna Systems Corp.



"It was a dramatic change for the better."

Marion Salminen
Director of Individual Administration
Cigna RE Corp.

The planning process

The initial group that penned Cigna RE's re-engineering plan in 1989 was made up of about six people. Group members included Newman and her management staff and workers from the corporate Cigna Systems group — including Raymond Caron, president of Cigna Systems.

Together, they decided on those business concerns within Cigna RE that would be the initial targets for re-engineering — namely, productivity, staff reduction, technical area improvement and underwriting. Next, they set target dates and laid out the game plan. During this period, they contacted several consulting firms to discuss how they could help with the re-engineering project.

After meeting with various consultants, Cigna RE selected Burlington, Mass.-based Symmetrix, Inc. to aid in the re-engineering effort. Drewette says Symmetrix helped Cigna RE identify the re-engineering opportunities as well as the organizational and systems changes it would bring about. The company helped to develop the new systems and the team structure that remains Cigna RE's organizational setup today.

The early stages of implementation began by the end of 1989 with the establishment and building of four administrative project teams broken down into geographic regions. Team leaders were selected by Cigna RE's management.

Aligned with each of those four teams were sales, marketing and underwriting personnel. The systems area worked under the team concept also. The cross-functional team's task was to zero in on areas that needed improvement and set goals to achieve the improvement for that particular geographic region, Drewette explains. These teams are still intact; every worker within Cigna RE falls under the auspices of a team.

All members of the teams were encouraged to go out with the salespeople to meet

Continued on page 80

Continued from page 79

customers and find out their needs. Under these teams, there were smaller task teams that ranged in size from two to seven staff workers and concentrated on implementing the specific pieces that would meet the overall team goal.

Cigna RE experienced the following technical changes:

- The creation of an integrated client management database management system for use by underwriters. The underwriters use the system for initial business and renewals. Additionally, sales and marketing personnel can access the system for client leads and other information.
- The replacement of 85% of the mainframe and stand-alone personal computer-based systems in use; the number of systems dropped from 17 to five.
- The focus has changed from mainframe- and dumb terminal-based platforms to a more networked PC orientation. Technologies in place include IBM's OS2/Extended Edition running on Personal System/2s and C++, a fourth-generation, object-oriented programming language. The firm has moved entirely to a relational DBMS-driven architecture.
- The technical pieces of new applications were put together as they were developed so users could take advantage of the benefits as soon as they became available.
- Rapid applications development and systems prototyping were brought to the systems area to facilitate the implementation of the client management system.
- PC applications have been brought to the users' desktops, allowing them to generate reports and so on using spreadsheets and word processing packages.

The new systems at Cigna RE provide users with access to more information and alleviate the need for paper to be shuffled from one desk to the next.

Marion Salminen, director of individual administration in the Individual Life Group area of Cigna RE, says the systems have revolutionized the way users do their work in her department. "It was a dramatic change for the better," she says.

Salminen says that under the old terminal-based system, most of the insurance processing was handled overnight, and some documents took more than two weeks to be processed. With the new client management system, she says, most documents are processed in 15 minutes on-line.

With the old system, when Cigna RE employees needed to reissue or change a policy, they manually indicated how to calculate the changes involved at the current rates — a very labor-intensive process.

"The new setup is based on a backbone system, where reinsurance [policy] information is stored. The information includes how to calculate the changes at the client level," Salminen explains. Therefore, new transactions or changes are

Re-engineering by the buck

Cigna Re Corp. invested $3.24 million in its re-engineering project, and the company says it is right on track with its two-year payback period. Here's how it breaks the numbers down:

CIGNA

Custom applications	$1,260,000
Purchased hardware and software	$680,000
Data conversion	$430,000
Internal chargeback cost for IS	$420,000
Miscellaneous expenses	$240,000
Mainframe development costs	$160,000
Installation fees	$50,000
Total	$3,240,000

CW Chart: Janell Genovese

Think 'business transformation'

Cigna consultant says: If you want major technology change to succeed, focus on human elements as well as on systems

BY DONALD FALKENSTINE

My vantage point in the information systems world during the 1980s was as a full-time user consultant within Cigna Corp. working on IS projects throughout its many businesses as well as with the corporate staff managing the overall corporation. The underlying premise of my work, known as systems humanics, is that attention to the human dimensions of technology-enabled change is essential if the company wants to achieve significant business benefits.

This attention to the human aspects of technological change was important as Cigna, a company whose subsidiaries are in the insurance and health care area, embarked on re-engineering its information systems and businesses (see the story of one such effort, page 79). I'd like to give you an idea of the philosophy behind our efforts.

In case after case at Cigna in the 1980s, IS did not reshape business processes. After an extensive development cycle — sometimes lasting years — we introduced a system and sought the planned, significant business improvements. Disappointingly, they were difficult to find.

For us, as for most companies, the failure of such new technologies and products boils down to the fact that we didn't make sufficient changes in individual and organizational habits to obtain the business benefits we'd planned for. Technologists and businesspeople want to introduce change with the least amount of impact on the status quo, but the systems they end up putting in place are either ignored or not used.

At first, this is merely frustrating. But if this condition continues, a company never gets the payoff from the investment it has made in information technology. And even more critical, it will not achieve the breakthroughs in productivity and product delivery that are becoming necessary in an increasingly tough, competitive world.

At Cigna, we wanted to stop this way of handling IS. We needed to approach the application of technology in our businesses very differently. But how?

Our experiences with failed systems had made one thing unmistakably clear: Systems do not change businesses. The commitment to change the business occurs, and the technology becomes the principal enabler. The sequence is to commit to business change, then make an aggressive effort to leverage the capabilities and power of information technology.

INSIDER information

In 1987, a widely circulated paper by MIT professor John Rockart, titled "The Line Take the Leadership," had a tremendous impact on Cigna IS and business leaders. In it, Rockart wrote: "If they are to be operated effectively, today's systems almost always require radical alterations in an organization's structure, personnel, roles and business processes — sometimes even in the culture of the corporation itself."

Whether this process is called business transformation or re-engineering, this message began to echo widely within Cigna. Bill Taylor, Cigna's chairman, instructed his staff that although the opportunities available to us in our technological resources have long been trumpeted, there were few examples of actually using technology to create a competitive advantage.

He indicated that he would accept no strategy as complete without a clear understanding of what the strategic technological alternatives were and how they might affect performance.

Taylor said business sector managers must make this kind of thinking a regular part of their strategic planning.

Ray Caron, president of Cigna Systems Corp., Cigna's corporatewide IS division, told his organization that "it is not just having to build the applications. It is managing the change in terms of how the work is going to change, how jobs change, how training of the employees changes and ensuring that the environment that you're going to install the system in is one that will produce the benefits you want."

In September 1989, Taylor and Caron created a re-engineering function and placed it in the IS division. Its charter was to develop re-engineering capabilities throughout Cigna. IS companywide has become a catalyst for business transformation at Cigna.

What it takes

Two years after the formation of Cigna's re-engineering function, criteria for a successful re-engineering effort are beginning to emerge — criteria that we apply to all our projects.

The primary criterion — and probably the cornerstone concept — is that the goal must be audacious: It must target 60%-plus improvement in business productivity or business results. To make a project of this magnitude work, the business reward must be projected at a level that is worth the price of business and personal disruption.

Furthermore, we kept in mind that incremental objectives encourage pedestrian thinking. In one of our projects, after an initial study that predicted major business change and major business advantage, business management asked the re-engineering team to provide an estimate of the cost and impact of 75% change. We declined.

This example of a management team that was reluctant to sign on to the full level of change and asked us plaintively, "Please, can we do it with 75% of the disruption?" underlines an absolutely essential criterion for re-engineering: The champions and sponsors of a re-engineering effort must be the leaders of the business being re-engineered.

Re-engineering requires thinking out of the box — breaking the organizational traditions that limit imaginative solutions. What is being sought is a new paradigm for the business. So it is important that the scope of the business problem be redefined, often across functional lines.

Another criterion for such a redesign effort is the recognition and belief that it is modern information technology that makes possible radically new paradigms for performing and organizing work. The company must begin to value information technology for the ways in which it enables the rethinking of the business.

It is also important that the business process become the focus for any specific re-engineering methodology you choose and that these business processes are viewed from a cross-functional perspective. Putting in place a cross-functional team is one of the essentials of Cigna's re-engineering effort.

That's it. That's what re-engineering is all about and especially what it is about at Cigna.

If the situation does not permit an audacious business goal plus nonincremental thinking plus business champions plus new paradigms plus technology as a vehicle for rethinking the business plus a goal of radically new business redesign, you don't have a re-engineering effort. You probably have a traditional systems application project.

Only you and your partners can determine whether that's good enough, in light of the business situation. •

Falkenstine is former assistant vice president of systems humanics at Cigna Corp. He is now retired.

assigned to the correct policy, and the system does all of the new rate calculations. Workers in Salminen's department use PS/2s as their systems platform. Because they can run spreadsheets and word processing packages on the personal systems, users can generate their own reports if necessary.

For the 10 underwriters on the system, Salminen adds, the changes were even more dramatic because this area had never been automated. There are 60,000 active files on the system at any given point, she says, and the underwriters have access to them all. The Individual Life Group area workers are tied into an IBM mainframe in Cigna's Windsor, Conn., data center.

In Cigna RE's Group and Special Risks area, the new networked IBM PS/2 and server-based client management system put in place by Drewette's group means that all 50 workers in that department can easily call up and look at client data. That information allows the users to identify customers and customer information more readily as well as to create better account updates.

Improved account updates are important, expecially for marketing people who may be speaking with a client on the telephone and need to know quickly and easily how much business that client does through Cigna RE. That is a major change from the past, when information was not at the fingertips of those who needed it.

Today, users "must get into the system to generate the management information that is needed to carry out the business," says Mary Ellen Sniegowski, director of financial reporting and systems administration. "So, we essentially have 100% participation."

Self-managed work teams

The technology has also served as the vehicle by which users were able to be more independent and responsible for their work. In fact, technological changes, coupled with the success of the planning team approach, have made possible the use of self-managed work teams throughout Cigna RE. Self-managed work groups provide a flexible structure in which individuals form temporary teams with a peer as manager to tackle issues such as systems enhancements. These groups disband when the issue at stake is dealt with.

Self-managed work team members are frequently called on to make business decisions. Drewette says some teams must find ways to redistribute the work load so that a new hire is unnecessary.

Still, the team-building process is not always smooth. "Workers want control over things they view as positive, but they still want to rely on the manager when there are negative things." The impact of self-managed teams is primarily a good one for both the worker and, by extension, the customer. In the Individual Life Group area, "self-managed teams give more job enrichment — workers are involved with more functions for their clients," Salminen says.

Dramatic changes

The upshot of technological and organizational change for Cigna RE departments has been dramatic:

- The company's work force has been halved.
- Turnaround time for document processing has improved by more than 90% in some areas because work flow and systems designs have been revamped.
- Operating costs have dropped by as much as 40%. In 1990, Cigna RE had revenue of $191 million and earnings of $18 million, compared with 1989 revenue of $183 million. (1989 earnings were not available.)
- Workers are gaining greater responsibility and "ownership" of projects.
- Cigna RE management says the company is more competitive.
- The company is exploring new revenue streams. Newman says she is not averse to selling the client management systems technology to competitors, "either servicing them on a per-transaction basis or perhaps licensing the system to them."

Cigna RE's goals were not always as easy as improving customer service, saving money or creating new businesses, however. Nearly half of its 225-member work force was eliminated because of the job consolidation associated with re-engineering.

Newman says she had hoped to seed those workers back into other jobs at Cigna, but it was not always possible. She also says that while the company was optimistic that re-engineering would pave the way for other business opportunities within Cigna RE and create new jobs, those have yet to materialize.

Trying to be up-front

Still, Cigna RE had made it a point to be up-front with its employees about the elimination of some jobs. Therefore, the vast majority of the job cuts required came through attrition — more than 100 jobs were eliminated that way, Newman says. The deepest cuts came at the departmental staff level because the work process is now smarter — fewer workers can handle the same amount of work.

Newman acknowledges that there were times when she felt some workers might look at her as a corporate bad guy for her efforts, which inevitably led to job cuts. But, she says, it's something that she cannot dwell on. "Fundamentally, what I said to folks is, 'You may not like the decision that I made to get started on this course, but the fact of the matter is — as I looked at things — there wasn't a different decision to be made.' " •

For a probing look into the phenomenon of re-engineering, see next week's Executive Report.

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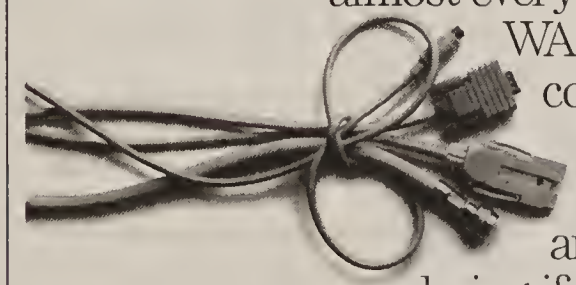

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Cigna RE shares its secrets of successful re-engineering

Cigna RE Corp. President Francine M. Newman and some of her top executives say they have learned many important lessons while undertaking Cigna RE's re-engineering effort:

DO define what you mean by "re-engineering."

"I told people re-engineering meant looking for radically different ways to do things and looking for radically new things to do and that we needed to look at getting our expense picture under control. I was really candid with them." — **Newman**

DO select your best people for project teams. Although pulling the best people away from their jobs can be disruptive at the departmental level, it is still necessary.

"It is very important to put your best people on the project — not just an extra person. Putting the best person [on the job] might cause problems on the business side, but if you're going to do it right, you've got to get the good people in there." — **Newman**

DO replace team leaders or members who are unable to effectively contribute to the team effort as soon as a problem is detected.

"Sometimes that is difficult because of personal relationships, but if you're not prepared to handle that, you run the risk of letting the project go astray." — **Gary Wolters, Assistant Vice President of Reinsurance Administration, Cigna RE**

DO communicate openly and honestly with employees about how re-engineering may affect their jobs.

"It takes a lot of the fear out of what is going on and it helps you get through the process a little faster if you remember that you can never do too much of that. And then remember that you never will." — **Newman**

DO understand that re-engineering an organization cannot work if it is solely a systems-driven function.

"The business needs to own the project, and it needs to stay the course." — **Ian W. Drewette, Vice President, Cigna Systems Corp.**

DO encourage team members to communicate informally.

"If you have three to five people, they can communicate on design issues and know what is happening without having to create reams and reams of paper in order to communicate the information to each other." — **Drewette**

DO educate and inform and then go back and do it all over again.

"I kept thinking, 'I don't think I can have another meeting on this because I've talked about it over and over again.' But there is always some aspect that people didn't hear or heard a different way from somebody else.

"So you have to keep going back to basics and repeating things over and over again and keeping them up to date over and over again in terms of how your thought process has changed, what is happening this week [and] what you expect to happen next month." — **Newman**

DO send workers to see how team-managed work flow fares at other companies.

"It's that whole notion of meeting someone who has been through it before. I think that was probably a critical turning point for people here in terms of 'Maybe this thing really will work. It is going to be tough, but somebody had an answer for every issue I brought up.' " — **Newman**

DO select a project leader who will stick to his guns.

"It is easy for projects to go astray or go beyond the completion date. Someone needs to push back hard to keep you on course." — **Wolters**

DO experiment with team sizes to find the optimum number of members.

"With seven people, you may run into communication problems. Meanwhile, with just two people — particularly if you haven't matched the two people — you may get a systems design based on the strongest person's thought process." — **Drewette**

DO understand that the perfect technical solution may not be what is warranted.

"That is a hard thing for a lot of systems folks and even for business folks because they say, 'This is the last time I may ever get to do this, so I want to build the best I can.' But you have to balance that with the need to be able to support the business and being able to deliver [the product]. Sabre [American Airlines' reservations system] wasn't the most perfect system when it first went in, but it solved a problem. So you try to figure out where that boundary is, and you learn that through trial and error." — **Drewette**

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Videoconference for less

▶ **MCI Communications Corp.** said it will soon offer a videoconferencing service to federal agencies, priced at about $100 per hour, or one-third the rate available for comparable service under the government's Federal Telecommunications Service 2000 package of telecommunications services. Based on Picturetel Corp.'s videoconferencing technology, the service will link two sites at 112K bit/sec. or 384K bit/sec. A future enhancement will allow multisite connections at those speeds, MCI said.

Dell fellow

▶ With research and development tripled during the past three years to $22.4 million, personal computer boomer **Dell Computer Corp.** has created a new position to help see that the money is well-spent, according to the company. The first named Dell Fellow will not only pursue a panoply of internal and externally coordinated technology research projects and coordinate the firm's aggressive patent program — he will also maintain Dell's reputation for youthful entrepreneurship: **David Register** founded his first computer firm while in graduate school.

Connections

▶ Nothing is definite yet, according to the companies, but one of the industry's leading computer-aided software engineering (CASE) players and one of the first firms to commercialize artificial intelligence may be about to tie the corporate knot. According to reports, CASE ace **Knowledgeware, Inc.** and **Intellicorp, Inc.** are currently in discussions that, in their terms, "could lead to a business combination between the two firms."

On our own

▶ Campbell, Calif.-based **Credit Union Services**, purveyor of information systems services to credit unions, has a new name, a new head and a new charter. In its fourth decade of business, the former **Control Data Corp.** subsidiary, which will be called **C U Services Corp.**, is heading into a new life as an independent company under the stewardship of Chief Executive Officer **Jon Lineweaver**.

Optimizing recessionary times

Lean economy bulks up demand for mainframe performance optimizers

BY SALLY CUSACK
CW STAFF

The big, black clouds of recession hanging over the economy have produced a silver lining for several mainframe software companies that are flourishing in today's bleak financial climate.

As users try to stretch hardware dollars as far as possible, companies peddling performance optimizers to IBM mainframe and plug-compatible mainframe shops are raking in profits.

Companies such as Legent Corp., BGS Systems, Inc., BMC Software, Inc., Candle Corp. and Boole & Babbage, Inc. are getting more competitive mainframe users to defer hardware purchases, noted William A. Strapko, an analyst at International Data Corp., a research firm in Framingham, Mass.

"Users save a lot of money on software rental fees and maintenance by stretching smaller machines," Strapko said. "It is cheaper to purchase an optimization tool — like tuning your car to keep it running longer."

While hardware revenues fell or remained flat last year, profits in the performance optimization industry were impressive:

- In fiscal 1990, Legent reported a 25% revenue increase to $169,531,000, up from $135,115,000 in fiscal 1989. The Vienna, Va.-based company said new sales rose 38% in the fourth quarter. Legent offers Astex, a storage performance manager for IBM MVS systems.
- BGS Systems, based in Waltham, Mass., writes capacity planning and performance management software for the IBM MVS environment. The company reported $5.1 million in profits and $22.3 million in sales during the past year. Operating revenue for first-quarter 1991 increased 6%, while net income increased 11%.
- Fiscal 1991 revenue for BMC Software in Sugar Land, Texas, rose 50% over fiscal 1990's, giving BMC net earnings of $31,383,000. BMC provides monitoring and direct-access storage device (DASD) management products for the IBM DB2, CICS and IMS environments.

"It is tough to define actual dollar benefits, but you can't do your job without them. It would be like taking a wrench away from a plumber," said Tom Amodio, referring to several of the BGS products. Amodio is a capacity planner at The Chase Manhattan Bank NA in Lake Success, N.Y.

Kenneth R. Siddall, senior systems analyst at The Arbitron Co. in Beltsville, Md., has been using the Legent Astex DASD and cache management programs in an IBM 3090 environment.

Arbitron does not use IBM's system managed storage but relies on Astex to manage cache storage at the data set level through a set of parameters. The software also allows the company to better use its existing cache storage, Strapko said.

Most of the vendors have covered the market and will be in for "ferocious competition" as they vie for the same client base, Strapko noted.

"They must add value or identify something unique about their product," Strapko said.

In the past, information systems organizations were so busy running their work loads, they just added more millions of instructions per second (MIPS). The "to-do" list was so long, managers just tried to meet capacity needs as fast as possible, said Frank Gens, an analyst at Technology Investment Strategies Corp.

"Now the dollars aren't here, and the work loads are still increasing," Gens said. "Instead of throwing MIPS at the problem, IS shops are going to concentrate on dealing with the existing situation more effectively."

Easy to be hardware optimizers

Tough times are creating a boomlet for software that boosts the clout of older mainframes

	Performance optimization revenue increase	
Company	**Revenue**	**% increase**
Legent Corp.	$169.5M	15%
BGS Systems, Inc.	$22.3M	10%
BMC Software, Inc.	$93.0M	50%

CW Chart: Doreen St. John

NET looks ready to rebound by year's end

BY JOANIE M. WEXLER
CW STAFF

With $50 million in the bank and a newly announced array of products, troubled wide-area networking vendor Network Equipment Technologies, Inc. (NET) could rebound by the end of the year, analysts said last week.

The firm has been battling a financial upheaval that started last year when members of its once-overstaffed sales team recorded unconfirmed bookings to meet overly ambitious quotas in a saturated T1 market. As a result, NET was forced to revise its third- and fourth-quarter 1990 revenue figures downward in April 1990, causing shareholders to sue the firm for allegedly releasing misleading financial data [CW, Nov. 5, 1990].

Executive-level management upsets contributed to the chaos: The firm fell behind in its progress on a line of network access products to rival those emerging from competitors' doors.

However, Steve Levy, a senior technology analyst at Hambrecht & Quist, Inc. in New York, said that "investors are likely to be reasonably forgiving, and the company's stock price could appreciate significantly" by NET's fiscal year 1993.

Some users are attracted to the new NET products but are leery of tying their fortunes to a firm whose stability has so recently been in question.

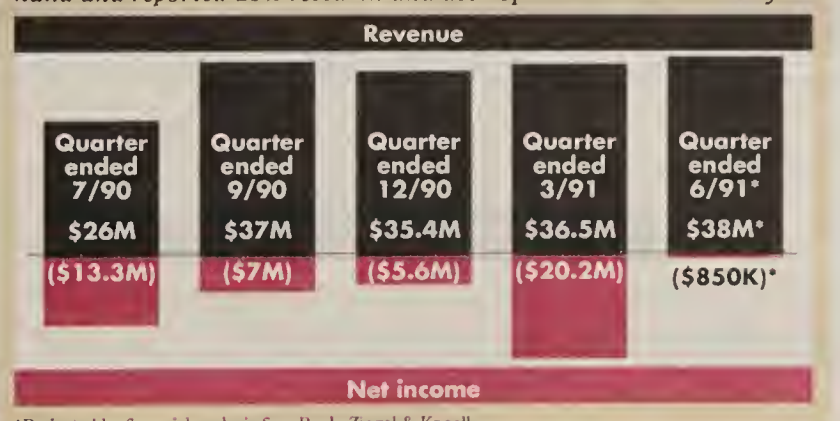
William Micklin, manager of the telecommunications bureau for the city of San Francisco, is shopping for a wide-area networking vendor. He said that while he will consider NET, "the company was damaged during the last year or two as to its stability. Stability is important; you're married to the vendor you choose for a long time."

However, he added that "the new products reflect a significant percentage investment of gross revenue. That shows NET is solvent."

NET's new network access products, announced last month, address multiprotocol routing within the company's IDNX T1 multiplexer and access products for smaller, remote Fortune 1,000 sites feeding onto T1 and T3 backbones at lower speeds.

NET results

Network Equipment Technologies, Inc.'s less-than-impressive balance sheet of late could be offset by the company's near-$50 million cash in hand and reported 15% research and development investment last year



*Projected by financial analysis firm Punk, Ziegel & Knoell

Europe the target

The access products aim to refresh existing NET accounts as well as to target new prospects in Europe, where telephone companies are in various stages of deregulation, said Daniel J. Warmenhoven, NET chairman and chief executive officer.

NET has added 77 first-time accounts in the past year, Warmenhoven said. "I don't think the public relations issue exists anymore," he added. He cited 20% to 30% corporate growth goals for the 1992 fiscal year.

"The fact that NET has money in the bank and has cleaned up its receivables and written off old products over the last year is important," said Frederick D. Ziegel, a partner at Punk, Ziegel & Knoell.

FCC urges long-distance competition

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Federal Communications Commission proposals to further deregulate AT&T, widely supported by big business users, were challenged recently by a congressional panel and assaulted by AT&T competitors.

Testifying on Capitol Hill for nearly three hours, FCC Chairman Alfred C. Sikes said the $55 billion U.S. long-distance marketplace is now vigorously competitive, particularly in its business-related offerings. Sikes defended FCC proposals to substantially deregulate the high end of the market. "Major corporate users have a clear interest in maximum competition among all communications suppliers," he said. "Competition spurs suppliers to provide their best products at the lowest prices."

Sikes said existing rules limit AT&T's ability to compete and lead to higher prices and more limited customer choices. However, members of the House Subcommittee on Telecommunications and Finance were skeptical. Some claimed that the benefits flowing to large corporate users would come at the expense of small business and residential telephone users. Others questioned how AT&T, with some 67% of the long-distance market, could claim to be "nondominant." Still others chided Sikes for the FCC's alleged use of theoretical models at the expense of marketplace realities. Most urged a go-slow approach to deregulation.

J. Richard Devlin, general counsel for U.S. Sprint Communications Co., said the FCC proposals threaten a return to monopoly in the long-distance marketplace. He pointed to recent FCC data showing a 1% increase in AT&T's market share in the last half of 1990, after years of decline. "The FCC's proposals in these proceedings are long on theory [and] short on reality," he testified.

The charge that small customers would foot the deregulation bill for large users will likely prove groundless because regulations individually cap AT&T's prices in "baskets" of services applicable to each type of customer, Sikes said.

One issue on the FCC docket is what to do about Tariff 12 — AT&T deals providing large users with customized, discounted packages of voice and data services. Last fall, a federal appeals court faulted the grounds on which the FCC earlier found Tariff 12 legal and ordered the commission to come up with a new justification for its finding. Devlin charged that AT&T's single-customer offerings are unfair and illegal.

"The Communications Act [of 1934] requires . . . that such discounts be offered openly and on a nondiscriminatory basis to all customers, rather than confined to those customers whom AT&T selects for favored treatment," he said.

However, "asymmetrical regulation" allows others to compete unfairly, said Joseph P. Nacchio, business communication services vice president at AT&T. "AT&T's competitors are responding . . . by routinely offering customers special terms, including discounts and other inducements not offered to any other customers. These competitors have also abused every tool in the regulatory process to obstruct AT&T's ability to compete in kind."

Carrier control chronology

- **1934** — Congress passes the Communications Act, establishing the Federal Communications Commission to regulate interstate communications. The act says carriers may not unjustly discriminate on the basis of price and must make price schedules public. Barriers to entry ensure an AT&T monopoly in long-distance services.
- **1970s** — Microwave and satellite technology spawn competition for AT&T.
- **1980** — The FCC defines "dominant" and "nondominant" carriers and retains traditional regulation for the former and "streamlined" regulation for the latter.
- **1982** — Government antitrust action breaks up the Bell System.
- **1987** — AT&T files first Tariff 12 option.
- **1989** — The FCC caps AT&T's prices, rather than rates-of-return, in three "baskets" of services applicable to different classes of users.
- **1990** — The FCC states that the business market for long-distance services is "vigorously competitive," suggests that regulations for AT&T business services may be harming consumers and proposes various steps toward deregulation.

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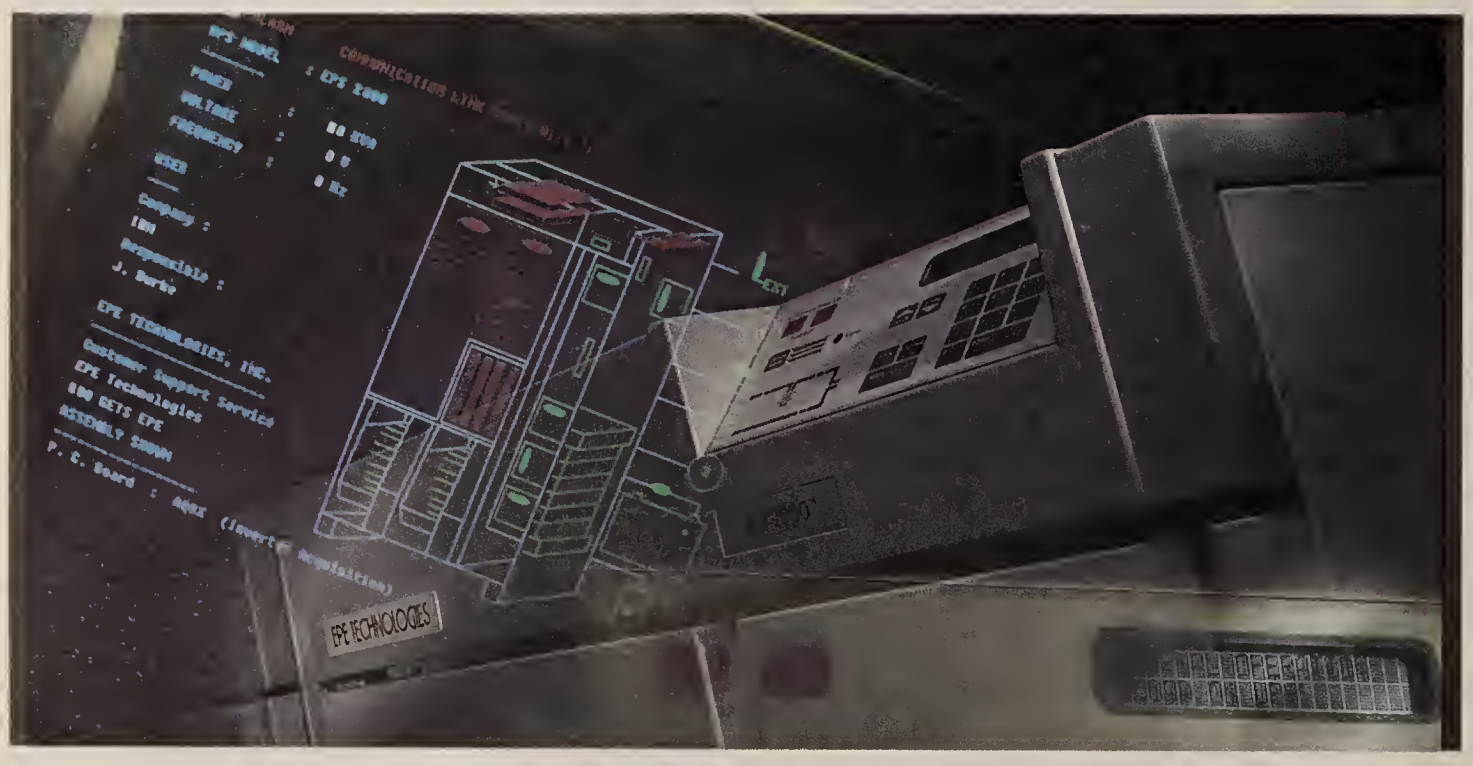

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Bull exec: Japanese eye Scandinavia for IS blitz

BY DON RADOLI
SPECIAL TO CW

OSLO — Piqued over Fujitsu Ltd.-controlled International Computers Ltd.'s acquisition of Nokia Data Systems, Bull International President and Chief Executive Officer Didier Ruffat accused the Japanese of singling out Scandinavia as the starting point for its assault on the European information technology industry.

France's Groupe Bull had been negotiating with Nokia Data over marketing cooperation in Sweden, Norway, Denmark and Finland when, in a surprise move last month, Britain's ICL, which was acquired by Fujitsu last summer, acquired the Finnish company for $391 million.

History may be repeating itself, Ruffat warned, citing the Japanese automobile industry's successful assault on Europe through Scandinavia. A defense of Scandinavia against Japanese encroachment on the region's information technology industry is imperative for a total European defense, he said.

Win this battle, win the war

"This market is interesting for the Japanese because although it consists of four different countries, it's largely homogeneous," Ruffat noted. "Its demand for quality products and service is very high. The Japanese know that if they win the battle for Scandinavia, they'll have won the war for Europe," he said.

With regard to Groupe Bull's negotiations with Japan's NEC Corp. on the conversion of the Japanese company's 15% holding in U.S.-based Bull HN Information Systems to 7.5% in Compagnie des Machines Bull, Ruffat said an agreement is expected in the coming weeks.

Ruffat reiterated the company's restructuring program, which involves closing down seven production facilities and eliminating 5,000 employees. He claimed that the restructuring was on schedule. Bull will attain profitability or at least break even by the end of next year, he predicted.

Declining to describe state support for Bull as subsidies, he said the French government was the company's principal shareholder and one that wants an independent European information technology industry.

Japan and the U.S. support their information industry in a number of ways no one seems to complain about. The Japanese market is virtually closed to the outside world. In the U.S., government contracts invariably go to U.S. vendors.

Asked whether he preferred state capital to private or foreign capital, Ruffat said the French government was Bull's major shareholder, and it was up to the state to determine the structure of the company's shareholders.

Radoli writes for Computerworld Norge, *IDG Communications' Norwegian publication.*

INTERNATIONAL BRIEFS

Big red

▶ **IBM** is about to open a new subsidiary in the Soviet Union. Based in Moscow, **IBM USSR Ltd.** is the latest sign of IBM's commitment to being a long-term player in the ongoing development of the Soviet society and economy, said Renato Reverso, recently named chairman of IBM World Trade Europe/Middle East/Africa Corp.

Hold the semiconductors

▶ Plans for a Europe-based semiconductor plant to be formed jointly by Japan's **Toshiba Corp.** and U.S.-based **Motorola, Inc.** are on hold, according to a Japanese press report. In the meantime, the report said, Toshiba will continue to export Japanese-made components. Motorola and Toshiba earlier announced plans to set up a dynamic random-access memory chip production plant in the UK or Germany. No date for the opening was specified. The report quoted company sources as saying that it would cost 20% more to manufacture the parts in Europe than in Japan.

What's Next in the UK?

▶ **Next Computer, Inc.** has dropped its direct sales force in the UK in order to leave its network of UK Next Centers without opposition in an already tough market, a report in the British business press said recently. The move, which cost the jobs of two of Next UK's 15-person work force, coincided with the signing of nine more Next resellers, bringing the total number to 15 — more than halfway to the firm's stated target of 25 resellers by the end of the year.

PS/2 bound for Australia

▶ In a new master distributorship arrangement that breaks ground for both companies, **IBM** and **Merisel**'s Australian subsidiary, **Micro Australia**, will work to bring the Personal System/2 line to Australia's approximately 600,000 small businesses. For Micro Australia, which has functioned primarily as a software distributor, the deal marks a quantum leap into the hardware market.

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COMPUTERWORLD

The newspaper for information systems management

Phoenix looks beyond past mistakes

After a dismal period of losses, some observers see former high-flier on an upward path

BY MICHAEL FITZGERALD
CW STAFF

NORWOOD, Mass. — Do not confuse Phoenix Technologies Ltd. with its mythological namesake: The firm did not live for 1,000 years before it crashed and burned the first time, and though some think it has a bright future, it has yet to regain a profitable course of flight.

Phoenix grew up in the heady days of the mid-1980s, when clone makers used its clean-room-developed, IBM-compatible BIOS in their personal computers. But sloppy accounting, loss of focus and a raft of smaller-than-promised orders stuck Phoenix with significant losses starting in 1989. The company also suffered from plain, old-fashioned competition, losing customers to such companies as Award Software, Inc.

"Phoenix was the largest IBM-clone BIOS manufacturer, but with the first-tier vendors doing their own BIOS and with a lot more competition, its business really fell off," said John Dunkle, vice president of Workgroup Technologies, Inc. in Hampton, N.H.

Ronald D. Fisher, Phoenix president and chief executive officer since January 1990, acknowledged the mistakes of the past but said he feels the company is already looking beyond them.

"We expanded too far in 1989, and it cost us," said Fisher, who came to Phoenix after serving as president and CEO of Interactive Systems Corp., an Eastman Kodak Co. subsidiary. "We found a number of customers that couldn't meet their commitments."

Phoenix's Fisher: *'We expanded too far in 1989'*

Fisher pointed to several changes as evidence that Phoenix is back on the right track. The major shift is in accounting: Instead of recording orders as revenue, the company now counts only completed sales. Other changes include a licensing shift and relentless cost-cutting: 260 people work for Phoenix today, down from 415 in 1989.

Part of this shift came before the arrival of Fisher, whose mandate was to continue cost-cutting and redirection. He was told by the board to "return [the firm] to profitability as rapidly as possible, but with a long-term view in mind," said Fisher, who added he did not come in looking to be "a hero."

Fisher has pushed Phoenix to keep its customer base happy and has eliminated the company's Unix BIOS project. He looks to a streamlined, three-pronged product strategy to eventually return the company to profitability, possibly by the end of the year:

- PC compatibility business. This best-known Phoenix group provides 45% of the company's revenue.
- Page business. Phoenix makes PCL 5, Postscript and other kinds of printer software; the group generates 20% of revenue.
- Packaged products division. This group has two facets. It licenses Microsoft Corp.'s DOS and resells it to small systems integrators in the U.S., and it also publishes manuals for systems-level software such as DOS. This fastest growing part of Phoenix accounts for 35% of sales.

Phoenix has also aggressively pursued the burgeoning clone notebook market, working with Intel Corp. to provide easy-to-use kits that allow vendors, largely based in the Far East, to quickly develop portable computers based on Intel's 80386SL chip.

"I think it's working," Fisher said. "If you look at our operating results in the last quarter, you'll see the effects of that on the revenue line and operating line." Phoenix reported a net loss of $188,000 in the first quarter, a significant improvement over the $4.6 million loss posted for the comparable quarter in 1990.

One survivor of pre-Fisher days said the company's employees believe the firm has turned the corner.

"There is a much more heightened sense of ownership and teamwork. I see it most in a very high degree of energy," said Richard W. Levandov, vice president of marketing at Phoenix. He has been with the company since 1984.

Phoenix is also beginning to make believers out of stock analysts.

"I think they've already turned around," said David Benhaim, an analyst at Adams Harkness & Hill, Inc. in Boston. Benhaim said his confidence comes from the presence of Fisher's team, the fact that the company had plenty of cash behind it and a largely stable customer base.

"I saw all the ingredients for a turnaround and could also see the laptop explosion coming," Benhaim said. "Phoenix is well-positioned for that."

Dunkle applauded Phoenix's strategy but wondered whether the firm would be able to execute it.

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9:00-10:00 am

Sheldon Laube
National Director, Information & Technology, Price Waterhouse
"Desktop Directions: How New Desktop Technologies Will Further Empower People"

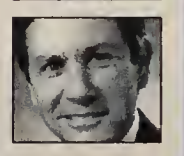
Lotus Technology Briefing
Wednesday, August 14
1:00-2:00 pm

Dr. Frank King
Senior Vice President, Software Business Group
Lotus Development Corp.
"Software Applications for Working Together in the 90s"

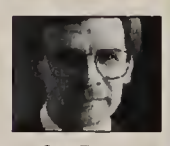
OS/2 Strategy Briefing
Thursday, August 15
8:30-10:15 am

Lee Reiswig
Asst. General Manager, Programming, Personal Systems, IBM

Joe Guglielmi
General Manager, Marketing & Business Development, Personal Systems, IBM
"Personal Systems Software Directions"



Developers' Keynote
Friday, August 16
9:00-10:00 am



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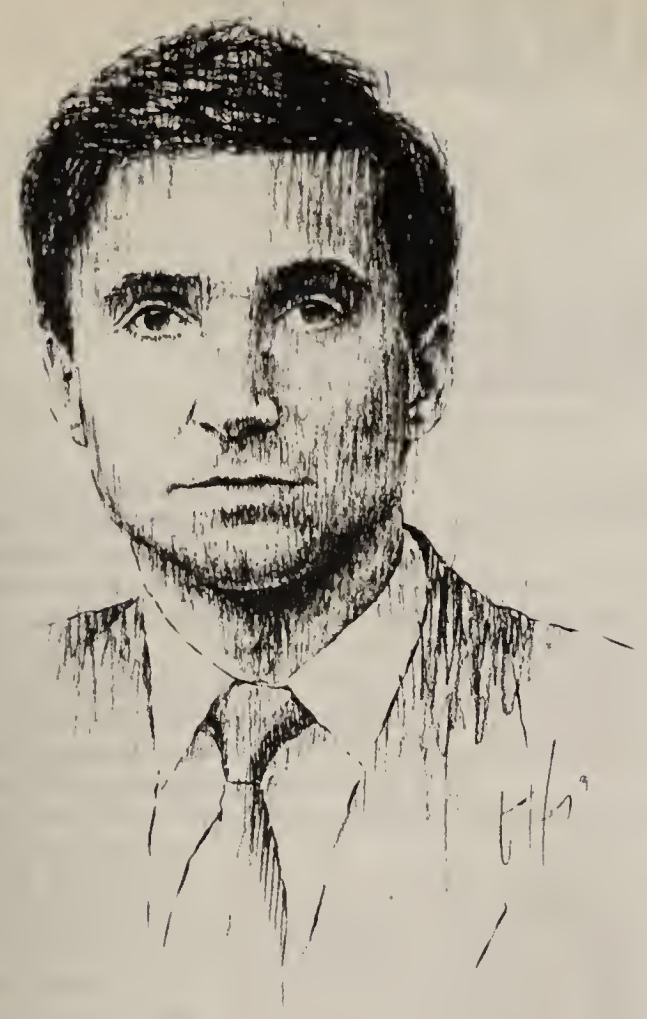

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DIARIES OF TWO JOB SEEKERS

Networking key in job search

Finding a job after a layoff isn't easy, but the pain of learning how to handle a job search can be lessened by knowledge gained from previous experience. A combination of such experience and networking with former contacts helped Sherry Mitchell land a new job within six weeks.

Mitchell, who has 12 years of programming experience, was laid off in February from her job as a staff consultant at Trecom Business Systems. She was better prepared for the event than most because she had previously been laid off by Merrill Lynch & Co. after the stock market crash in 1987. She was ready to handle the initial self-doubt and lack of confidence that follows a layoff. This time, however, she was concerned about the recession. Here's her story:

FEBRUARY 25
My immediate desire after being let go was to keep it a secret. But that changed when I realized that if people didn't know I was available, they wouldn't be able to help me.

So I began by answering newspaper ads and contacting previous business associates. These contacts yielded two interviews at computer consulting firms. Both companies said they would hire me if they found a client that needed my skills.

MARCH 4
I arranged an interview with National Prescription Administrators, a provider of corporate benefits packages, after answering a newspaper ad.

During the interview, the recruiter presented her firm enthusiastically but gave my qualifications only a cursory review. The firm had received more than 150 responses to its advertisement. It didn't sound promising.

MARCH 11
I attended a technical job fair. Luckily, there were nine exhibitors — mostly consulting and telecommunications firms — looking for people with my background.

The wait for each exhibitor was 45 minutes, and the amount of time I could spend with them was limited to a few minutes. Many other applicants in line were also victims of layoffs.

When I reached the head of one line, I spoke with a recruiter for a consulting firm. We arranged a formal interview to speak about my situation.

The resulting interview wasn't as encouraging. The recruiter didn't have any requirements for a Cobol programmer, but he was sure it was just a matter of time before he would.

MARCH 18
The fourth week of my job search was the most discouraging: I had absolutely no interviews. I continued to make calls and to send out resumes to any leads — whether through the newspaper or through word of mouth.

MARCH 25
An independent recruiter set me up to take a programming aptitude test for a wholesale food distributor for a supermarket chain. Interviews would be granted only after the test results were calculated.

Pinkerton Computer Consultants, Inc., a regional consulting firm based in Pennsylvania, contacted me to see if I'd be interested in doing some contract work through them for Merrill Lynch. Ironically, the consulting work was at the same office that had laid me off in 1987.

I recognized the name of the client manager that I was to interview with, although we had never worked together. I was somewhat apprehensive about this situation.

APRIL 1
I passed the aptitude test given by the food distributor and earned an interview. In addition to technical questions, the hiring manager asked about my hobbies and interests to ensure that I would fit in with her close-knit group.

Merrill Lynch was interested in hiring me as a consultant through Pinkerton. Pinkerton had presented several resumes to the firm, and I was the only person they had requested to see. As the client manager at Merrill Lynch greeted me, he said, "Oh, that's who you are!"

After he interviewed me, we finalized the deal. I was to start the following Monday with a contract that would run through the end of the year or longer.

I felt relieved as I drove to Pinkerton's office to sign the necessary paperwork. I was getting a slight increase in pay, and with this assignment, I would be gaining exposure to personal computers, a software engineering package and DB2 — all skills that would enhance my resume.

With so many people unemployed for months, I was pleased that my job search took only six weeks.

Experience not a sure thing

Sometimes, even very experienced information systems executives have difficulty finding a new position. Such is the case for Robert Lobman, director of MIS for 11 years at United Merchants and Manufacturers, Inc. and vice president of MIS for 10 years at real estate giant Helmsley-Spear, Inc. Lobman thought that he'd have it easy when he decided to change jobs. As a member of an informal regional job network — an association of IS executives who have helped one another during the past few years in their search for employment — and as a member of various computer industry organizations, he felt he had entry into many companies. But one year later, he still continues his hunt. Here is his account:

JUNE 1990
The summer isn't the best time to start a job search, but it is a good time to prepare.

I contacted some members of the job network group to let them know of my availability. As the word spread, I received many calls from people I had helped during the past few years. They gave me names of network contacts and recruiters.

On the third day of my search, I had an interview with a ball-bearing distributor that was located about 15 minutes from my home. I rejected the offer because the firm was much smaller than I was used to.

JULY 1990
I mailed copies of my resume to about 20 retainer search recruiters and 50 regional contingency recruiters whose names were given to me by someone from the job network.

The first stages of my job search were hectic and not too orderly. It became obvious that some organization was needed. I developed a work routine and a method of tracking everyone I spoke with. At first I used a set of index cards and later switched over to a personal computer.

NOVEMBER 1990
Two possible opportunities cropped up this month.

One was an IS position for the city of New York. I met with a human resources person who told me that I would be invited back.

The second situation originated through a search recruiter who set me up on an interview with a credit card company.

This was one of the most unbelievable interviews I've ever been on. I was asked about 15 illegal questions beginning with my date of birth and followed by whether I was ever in jail. I answered all of the questions because the alternative was to walk out and disqualify myself immediately.

JANUARY 1991
I was told that I was the leading candidate in both jobs.

Later in the month, within hours of each other, I was told the jobs were going to be filled internally.

FEBRUARY 1991
I went on more unsuccessful interviews for jobs I knew I was not qualified for. Early in my campaign, I decided to go on any interview for two reasons: For interviewing practice and to try to get leads from the interviewer.

I joined the newly formed Northeast MIS Network Group, which is really a more established version of the informal job network group of which I was a member. The only qualification for joining is to be unemployed. The group meets regularly in New Jersey, and the main purpose is to exchange leads.

APRIL 1991
A recruiter called me regarding a search he was doing in New York. After a telephone interview, he arranged to meet me. We had a super meeting that ended with a promise to call me within two weeks.

He told me that I matched his requirements exactly and even had some experience that was desired but not necessary. Two weeks later, he called to tell me that the chief executive officer was going to meet with three other candidates who had industry experience.

I had a marathon set of interviews for another job. The company received more than 700 resumes and interviewed 12 candidates. The following day, four of us were given psychological tests and eventually one of the other three was offered the job. The four of us were clones of one another. I don't know what the deciding factor was, but I do know they had a tough decision in separating us.

MAY, JUNE 1991
I began to take classes on the Application System/400. During the next few months, I plan to take courses in other technologies, such as computer-aided software engineering. I'm doing this for three reasons: to stay current, to meet the needs of more companies and to stay busy.

My search continues.

Telecommuting a rare option

Fast Track is a twice-monthly column dedicated to answering questions on career directions.

BY SUZANNE F. FAIRLIE
SPECIAL TO CW

Q I am a business applications programmer who has been telecommuting for three years. Because of the economy, I was laid off. How can I find a similar arrangement without working for years at a company first?

Initials and town withheld

A Although telecommuting is getting a lot of attention, it is not something that has yet reached maturation.

Some of the reasons against this practice include the following: less management control; the potential for abuse of hours truly performed on the job; the inability to allow client or team interface; and the inability to allow timely technical support.

Unless the employee has been able to "prove" his or her work ethic and trustworthiness by previous employment in the firm, or unless the employee is already well-versed in the application, methodology and/or technology, telecommuting is unlikely.

Q I am an Egyptian with 10 years of information systems experience on IBM machines. I intend to start a consulting firm when I return to Egypt. However, I want to introduce myself to some U.S. companies to see if they'd be interested in giving me some projects to take with me. The cost of performing these projects in Egypt would be much lower than doing it here in the U.S. because of reasons such as lower taxes and lower prices. How should I go about doing this?

M.R.S.
Alexandria, Va.

FAST TRACK
CAREER ADVICE FOR THE '90s

A The best way to introduce yourself and your services to U.S. firms is through networking and word-of-mouth referrals. Businesses in today's competitive market are looking not only for lower prices but also for quality and cost-effectiveness for their dollars spent.

If you have performed quality work at an economical price for well-respected companies, and if you negotiate, as part of your initial low price, the permission to use their name as a reference, you have developed a good starting base.

Q About one year ago, I obtained a master's degree in computer science after switching careers from chemical engineering. However, during that time, I have been able to get only three job interviews. Should I just continue to send out resumes and wait for the recession to lift, or is there something else I could do to improve my marketability?

R.F.
Brooklyn, N.Y.

A First, sending out resumes effectively means having a clear, concise resume — neatly printed with no typos — and experience appropriate to the position desired.

More important is the inclusion of a well-written, personalized cover letter that indicates where you saw the position listed, the title of the position and your qualifications. Attend job fairs and appropriate user-group meetings and contact colleagues who may have leads in the companies you've targeted.

Second, changing careers in a tight market is very difficult. Target those companies in your area that have the positions and career path you want and then offer your services on a temporary contractual basis. If you're good, they won't let you go.

Fairlie is president of Prosearch, Inc., a data processing and information systems placement firm in Philadelphia.

We welcome your questions. Send them to Cathy Duffy, Careers Fast Track, Computerworld, *375 Cochituate Road, Framingham, Mass. 01701, or fax them to (508) 875-8931. Letters may be edited for brevity and clarity. Your initials and town will be printed unless you request otherwise.*

JOB SNAPSHOT

Cobol programmers

Job Snapshot is a monthly column identifying key attributes of information systems career positions.

▶ **BEST EDUCATION:** A programmer can easily grasp Cobol fundamentals in a six-month technical school course. But a four-year college education is desirable because it arms Cobol programmers with the communications and critical-thinking skills they need to move up the corporate ladder. Cobol programmers hold degrees in subjects ranging from music to business. A computer science education, while helpful, is not a must. To cover all bases, an individual wishing to enter the field should take a technical training course in Cobol after completing college.

▶ **BEST JOB OPPORTUNITIES:** Many organizations have built their business and accounting functions on decades of Cobol code. Although the bulk of the Cobol jobs are still in the traditional spheres of insurance and banking, virtually all industries employ talented Cobol programmers, both to maintain existing code and to develop new applications. Hot areas include broadcasting and manufacturing.

▶ **CAREER MINUSES:** There is a glut of Cobol programmers — and experienced ones at that. In addition, Cobol is an outdated language, despite its popularity. Fourth-generation languages, artificial intelligence, computer-aided software engineering, personal computer-based tools and C are the future. Cobol's not dead, but it's by no means a ticket to long-term technical prowess.

▶ **ADVANCEMENT POTENTIAL:** Without a college degree, a hardworking Cobol programmer can march up the ranks to progammer/analyst, systems analyst or director of systems development. A degreed Cobol programmer has a better chance of making it to upper management, particularly if he or she knows other systems or languages. A generalist with a skill base that includes but is not limited to Cobol may advance more quickly than a Cobol specialist.

▶ **REAL-WORLD ADVICE:** Diversify your repertoire to include skills other than Cobol. Don't fret about the low pay when you start out: Get the experience and the money will soon follow.

Researched and written by Carmen D. Wiseman, a freelance writer based in Watertown, Mass.

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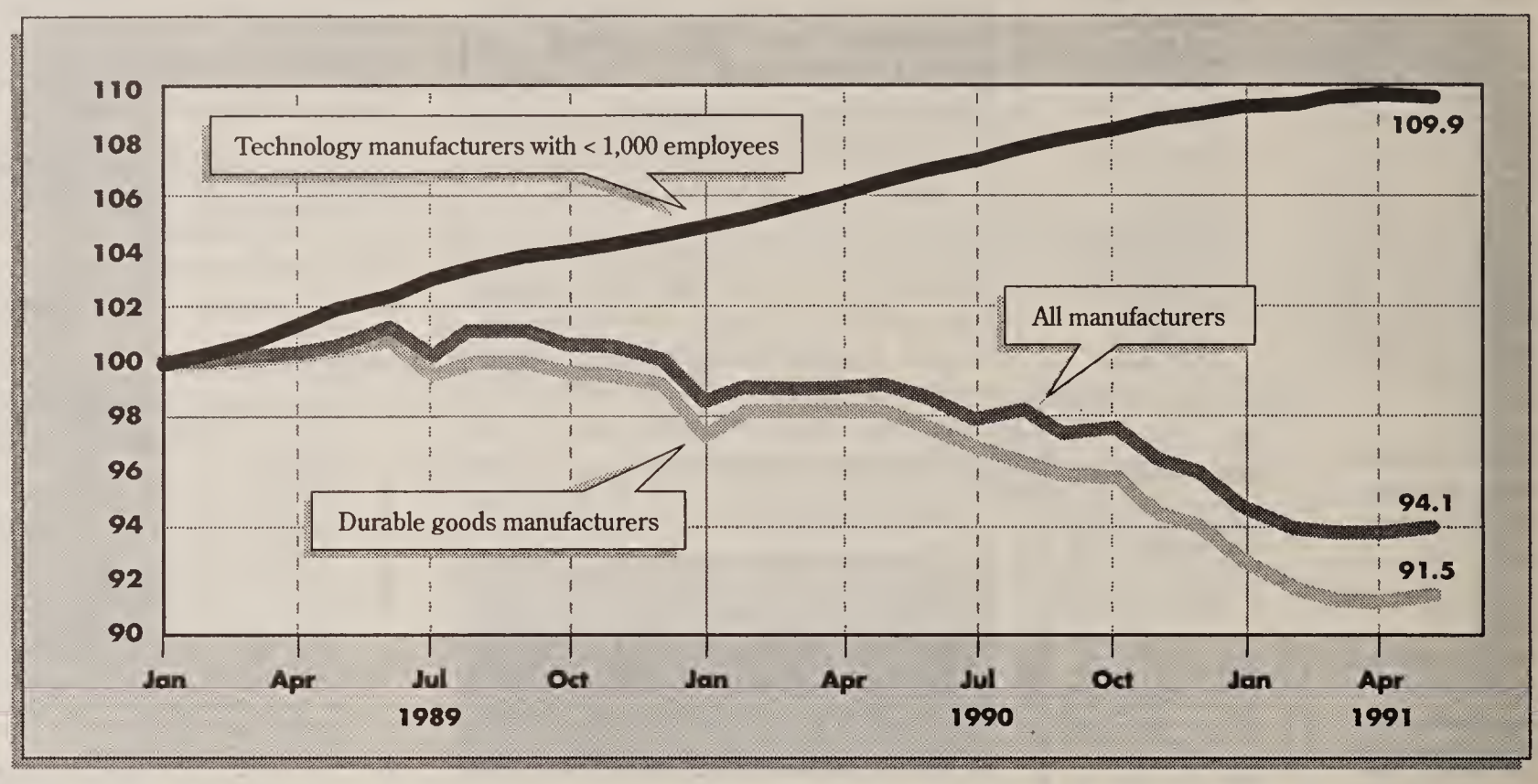

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Contract key to integrator dealings

Legal eye is a monthly column exploring legal issues and their impact on information systems.

BY JOEL B. GILMAN
SPECIAL TO CW

Rather than deal with the tangled web of hardware, software, networks and accessories, many information systems managers farm out the work to systems integrators.

The biggest advantage, managers say, is that they know exactly what they're paying up-front, and there are generally no surprises. Managers also say that systems integrators make their lives easier: They get the benefit of the integrator's experience in designing and installing similar systems for other organizations, and they don't have to endure the finger pointing of several different vendors if there are bugs in the system.

The key to working with a systems integrator is to start with a detailed contract that outlines expectations. Most disputes arise because of simple misunderstandings between a buyer and seller as to exactly what was promised.

A systems integration contract should cover the following issues:

- **Extent of the systems integrator's services.** Check whether the integrator will install and test local-area networks and whether it will load, configure and test off-the-shelf software. Also find out if the integrator will design, code, test and install custom software and other items.
- **Setting schedules.** Pinpoint a due date — either an absolute calendar date or the projected amount of days the installation should take. Include a payment schedule for the integrator.
- **Fixed cost vs. time and materials.** An IS manager is better off negotiating a fixed price, as this gives him a definite figure around which he can budget.
- **Data conversion.** Make sure the contract provides for the conversion of the current data to the new system.
- **Physical environment.** Find out if the systems integrator expects your firm to provide a particular physical environment (e.g., power quality, temperature, humidity) for CPUs, file servers and the like.
- **Training and support.** Obviously, new software won't help an IS manager's organization if the employees don't know how to use it, so make sure training and support are provided for.
- **Factory warranties.** An IS manager should insist on a summary sheet identifying whether the integrator is willing to provide a factory warranty or a blanket warranty. This step will go a long way toward minimizing disputes between the integrator and the vendors after the blanket warranty expires.
- **Allow for modifications.** As the project evolves, there will inevitably be changes. The contract should state that every deviation from the original statement of work must be documented in a change order, no matter how small or insignificant the change appears to be. Any change has the potential to increase project cost, delay completion and even jeopardize other functionality. Thus, it's important to review any proposed change from the standpoints of cost, scheduling and conflicting functionality elsewhere in the system.

After making such a review, if both parties agree to the change, the change should be documented, noting any cost, schedule or functional impacts. Then both parties should sign the change order. Consistent use of change orders is an IS manager's best insurance against costly disputes later on. There is simply no good reason not to use them.

Gilman is an attorney in Seattle who practices in the field of computer law.

Nail down the details

A contract to install a networked computer system is not unlike a contract to build a house: There are a great many details and a corresponding number of opportunities to make mistakes, miscalculate costs and underestimate the time required to implement the details.

Just as with construction contracts, problems in computer systems contracts usually arise because of weak or inattentive contract management.

The IS organization should designate an individual or a team to be responsible for monitoring the vendor's progress through weekly reviews. The reviews should probe the following issues:

- Adherence to schedule.
- Budget concerns.
- Problems encountered.
- Problems anticipated.
- Cost overruns.

The weekly review can be used as a forum to discuss, negotiate and sign change orders. If a problem or an anticipated problem cannot be resolved in the weekly review, the participants should have the authority to issue a stop-work order pending resolution of the problem.

Too often, in an IS manager's rush to get the job done, he fails to stop and consider the cost implications of continuing on a course of action that contains unresolved problems. It is often better to wait than to rush ahead.

JOEL B. GILMAN

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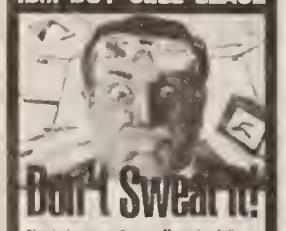

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AT Model 339	$750	$1,000	$700
PS/2 Model 30-286	$1,150	$1,300	$1,000
PS/2 Model 60	$1,300	$1,700	$1,300
PS/2 Model 70P	$3,400	$3,600	$3,200
Compaq Portable II	$750	$1,050	$700
Portable 286	$1,100	$1,350	$1,000
SLT 286	$1,700	$1,900	$1,550
Portable 386	$1,900	$2,100	$1,500
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Deskpro 286	$800	$1,000	$700
Deskpro 386/20	$2,150	$3,000	$2,000
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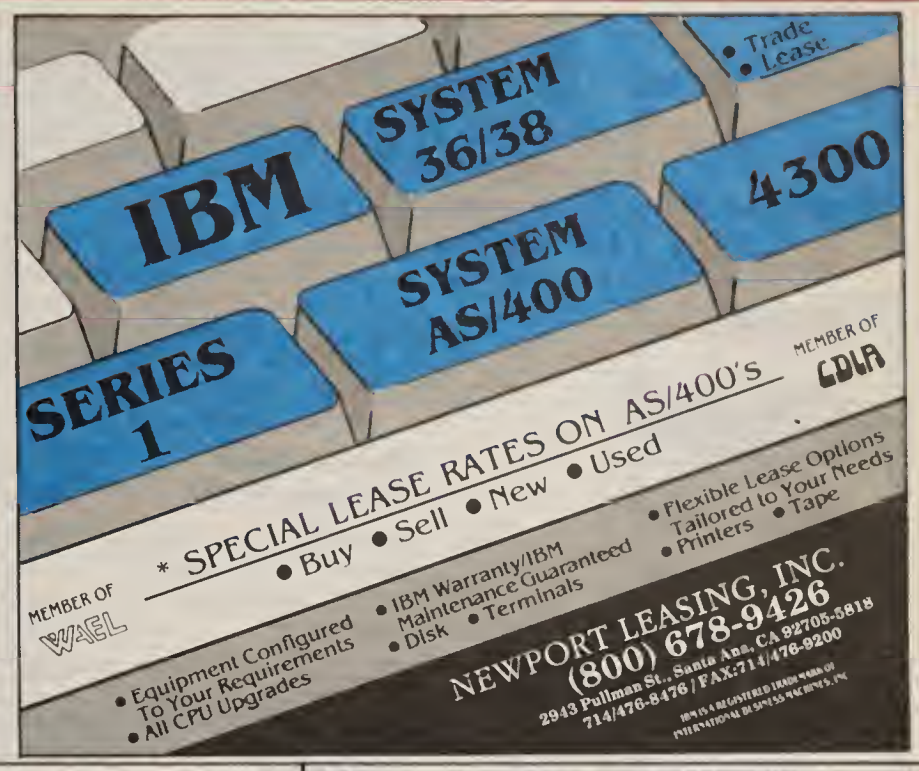

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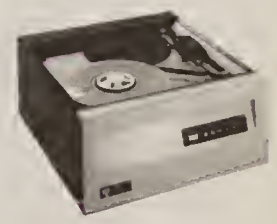

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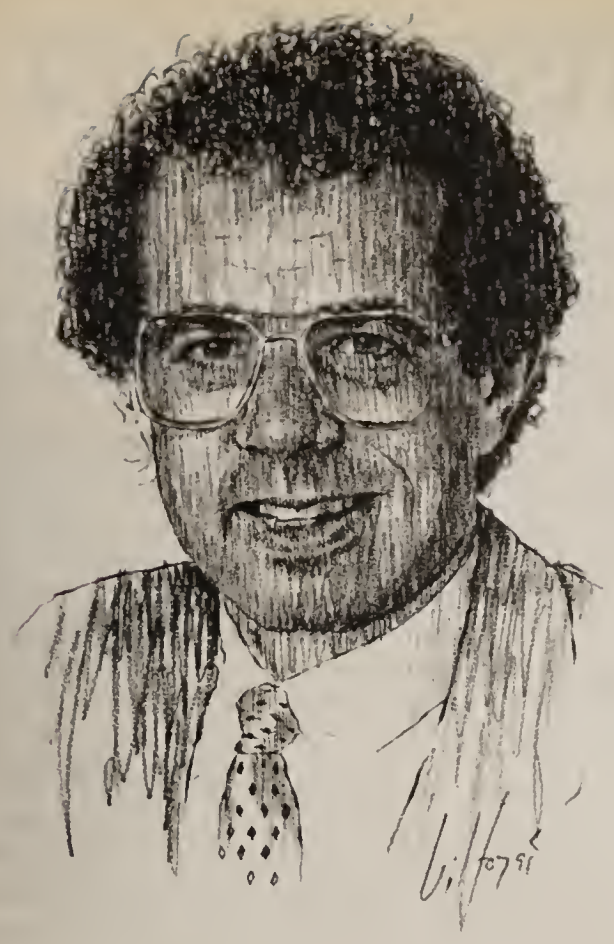

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INDUSTRY ALMANAC

RECOMMENDATION CHANGES

UPGRADED FROM BUY TO STRONG BUY: **Sun Microsystems, Inc.** (Bear Stearns & Co.). Reason: Sun stock now trades at the low end of its valuation. Galaxy, Sun's first multiprocessing server, is expected before the end of the summer and will help the company expand further beyond technical computing into the commercial market.

UPGRADED FROM NEUTRAL TO ATTRACTIVE: **Goal Systems International, Inc.** (Mabon Securities Corp.). Reason: Recent stock price fall makes Goal a good buy because its financial fundamentals are strong and sales are consistent — even through the current recession.

UPGRADED FROM HOLD TO BUY: **MCI Communications Corp.** (Bear Stearns). Reason: More stable long-distance rates and a better economy in 1992 will make the second-largest long-distance provider an attractive stock in the long term. MCI is an $8 billion company, and its entrepreneurial-type management fosters innovation and flexibility in the marketplace.

UPGRADED FROM NEUTRAL TO ATTRACTIVE: **Autodesk, Inc.** (Mabon). Reason: Company sailed through transitional period from Release 10 to Release 11 of its flagship Autocad software; revenue from customer upgrades is $5 million ahead of projections; near-term stock price will climb to $65.

UPGRADED FROM BUY TO STRONG BUY: **Parametric Technology Corp.** (Alex. Brown & Sons, Inc.). Reason: Firm will grow a great deal in coming few years as its reputation among mechanical design automation software buyers improves; the relative ease of connectivity of its Pro/Engineer package is expected to tempt users away from other engineering products.

ANALYSIS IN BRIEF

Is there any future growth in the mainframe industry? The death of the big machines may be a myth. The market has grown at a rate of 35% to 40% during the past five years, and mainframe customers interviewed said they will not slow future expansion.

New applications are keeping this computing platform alive and kicking. Backlogs for internally developed software remain high; third-party mainframe applications are in great demand.

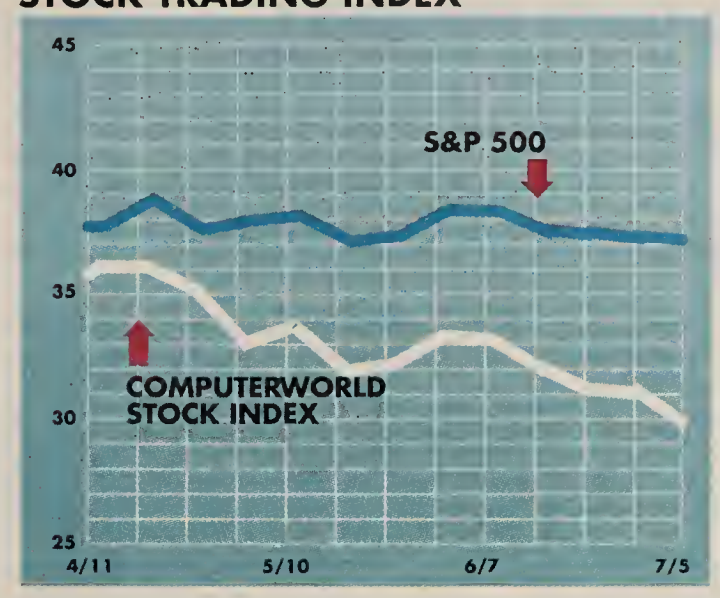
Although many said they see the current flagging demand for mainframes as evidence of a secular decline, the major problem is the product cycle transition, worsened by the slow economy.

IBM's current stock price may imply that investors have discounted any growth potential for the company's mainframe business — which brings in more than 60% of corporate profits. However, 1992 earnings are expected to rebound strongly, driven by sales of the new mainframe line. Investor risk is limited, so IBM is very attractive right now.

While earnings at **Amdahl Corp.** may also bounce back next year, the risk/reward trade-off is unattractive. Amdahl's new mainframe won't ship until six months after IBM's, so Amdahl will likely lose sales. Longer term, investors should be concerned that IBM's strategy might make it too costly for Amdahl to compete. — *Mainframe Industry Outlook, Shearson Lehman Brothers, Inc., June 26, 1991.*

KIM S. NASH

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

• After official word came from IBM and Apple Computer, Inc. Wednesday of a deal to swap technology and co-develop a personal computer operating system, IBM inched up ½ a point to close Wednesday at 98⅛. Apple added ⅝ of a point to 43⅛. Meanwhile, Microsoft Corp. dropped 4 points — nearly 6% — to close at 64.

• Other PC software and hardware makers were mixed: Lotus Development Corp. lost ⅝ of a point, closing at 33¼; Borland International, Inc. closed Wednesday at 45¼, up ¾ of a point; Compaq Computer Corp. jumped 2½ points to 32½.

• Mentor Graphics Corp. skidded 2¾ to 13¾ after saying this quarter's loss will likely be larger than anticipated. Oracle Corp., which is due to report quarterly results tomorrow, slipped ½ a point to 8⅛.

• MCI Communications Corp. leaped 1⅛ points to 29⅜, breaking a three-week string of weekly stock price declines. AT&T advanced ½ a point to 39¼.

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, JULY 5 , 1991

TOP PERCENT GAINERS

Interleaf Inc.	13.95
Information Int'l	13.16
IPL Systems Inc.	12.00
Knowledgeware Inc.	11.49
Intellicorp Inc.	11.11

TOP PERCENT LOSERS

Televideo Systems	-27.33
Sequent Computer Sys.	-22.22
Ultimate Corp.	-15.79
Mentor Graphics Corp.	-14.62
Gandalf Technologies Inc.	-12.00

TOP DOLLAR GAINERS

Apple Computer Inc	4.13
Nynex Corp.	2.63
Cabletron Systems	2.63
Knowledgeware Inc.	2.50
IPL Systems Inc.	2.25

TOP DOLLAR LOSERS

Microsoft Corp.	-6.38
Intel Corp.	-3.63
3M Corp	-2.88
Sequent Computer Sys.	-2.50
Mentor Graphics Corp.	-2.38

Communications and Network Services — Off 1.03%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
OTC	19.00	5.38	3 COM Corp.	6.88	-0.75	-9.84
NYS	69.75	52.50	American Info Techs Corp.	59.88	-0.38	-0.62
NYS	39.00	29.00	AT&T	38.88	0.63	1.63
OTC	5.00	0.88	Artel Communication Corp.	1.50	0.00	0.00
NYS	56.25	39.50	Bell Atlantic Corp.	46.75	-0.50	-1.06
NYS	56.25	46.38	Bellsouth Corp.	47.63	-0.75	-1.55
NYS	44.00	13.13	Cabletron Systems	39.38	2.63	7.14
OTC	25.88	8.25	Compression Labs Inc.	14.63	-1.38	-8.59
OTC	5.13	2.44	Data Switch Corp.	2.63	-0.25	-8.70
NYS	26.13	8.88	Digital Comm. Assoc.	13.88	-0.25	-1.77
OTC	25.25	12.25	Dynatech Corp.	18.50	0.00	0.00
OTC	12.38	5.50	Fibronix Int'l Inc.	7.25	0.00	0.00
OTC	3.88	1.75	Gandalf Technologies Inc.	2.75	-0.38	-12.00
NYS	4.13	1.63	General Datacomm Inds.	2.75	-0.25	-8.33
NYS	33.50	23.50	GTE Corp.	29.88	0.25	0.84
NYS	63.00	40.25	ITT Corp.	55.88	-0.38	-0.67
OTC	41.63	17.88	MCI Communications Corp.	28.50	0.38	1.33
OTC	8.00	2.75	Microcom Inc.	7.25	0.25	3.57
NYS	9.75	4.00	Network Equipment Tech.	8.63	-0.13	-1.43
OTC	14.63	4.00	Network General	8.13	-0.13	-1.52
OTC	15.50	8.13	Network Systems Corp.	11.75	-0.38	-3.09
NYS	38.13	22.13	Northern Telecom Ltd.	36.63	0.13	0.34
OTC	58.50	17.25	Novell Inc.	48.50	-0.50	-1.02
NYS	81.88	67.00	Nynex Corp.	74.00	2.63	3.68
NYS	47.50	36.25	Pacific Telesis Group	40.88	-1.38	-3.25
OTC	11.63	6.25	Penril Data Comm. Ntwks.	7.38	0.63	9.26
NYS	29.00	8.88	Scientific Atlanta Inc.	14.00	0.25	1.82
NYS	57.50	47.25	Southwestern Bell Corp.	53.00	-0.63	-1.17
NYS	40.50	20.63	United Telecom	30.00	0.50	1.69
NYS	40.75	32.38	US West Inc.	36.25	0.88	2.47

Computer Systems — Off 1.78%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
OTC	5.88	0.56	Alliant Computer Sys.	0.75	-0.06	-7.75
ASE	18.88	10.00	Amdahl Corp.	14.75	0.13	0.85
OTC	73.25	24.25	Apple Computer Inc.	45.63	4.13	9.94
OTC	10.50	3.88	Archive Corp.	4.00	-0.13	-3.03
OTC	32.75	7.50	AST Research Inc.	20.75	0.50	2.47
NYS	9.38	4.00	Bolt, Beranek & Newman	7.13	-0.13	-1.72
NYS	21.63	4.50	Commodore Int'l	12.38	0.75	6.45
NYS	74.25	29.88	Compaq Computer Corp.	33.25	2.13	6.83
OTC	2.13	0.13	Computer Automation Inc.	1.13	-0.06	-5.30
NYS	19.75	6.75	Control Data Corp.	10.00	-0.63	-5.88
NYS	20.88	8.38	Convex Computer	13.75	-1.63	-10.57
NYS	49.75	20.00	Cray Research Inc.	31.88	-1.13	-3.41
NYS	18.13	3.50	Data General Corp.	15.00	0.13	0.84
NYS	3.25	0.75	Datapoint Corp.	1.25	-0.13	-9.09
OTC	30.63	8.25	Dell Computer Corp.	26.13	1.63	6.63
NYS	86.88	45.50	Digital Equipment Corp.	59.63	0.13	0.21
NYS	34.25	13.75	Harris Corp.	25.50	-0.38	-1.45
NYS	55.13	24.88	Hewlett Packard Co.	50.75	0.00	0.00
NYS	139.75	96.25	IBM	98.63	1.50	1.54
OTC	13.50	7.75	Information Int'l	10.75	1.25	13.16
OTC	31.50	10.50	Intergraph	24.50	-0.75	-2.97
NYS	2.25	0.50	MAI Systems Corp.	0.50	0.00	0.00
NYS	149.75	114.00	Matsushita Electronics	119.75	-0.25	-0.21
OTC	19.00	9.00	Mentor Graphics Corp.	13.88	-2.38	-14.62
NYS	108.25	44.50	NCR Corp.	108.25	1.25	1.17
OTC	31.75	10.75	Pyramid Technology	12.88	0.75	6.19
OTC	33.25	8.75	Sequent Computer Sys.	8.75	-2.50	-22.22
NYS	47.25	18.00	Silicon Graphics	28.00	-0.38	-1.32
NYS	37.25	14.63	Stratus Computer Inc.	29.00	-0.38	-1.28
OTC	38.63	15.00	Sun Microsystems Inc.	25.88	-2.00	-7.17
NYS	24.13	8.88	Tandem Computers Inc.	14.25	0.38	2.70
NYS	39.50	23.50	Tandy Corp.	27.50	0.75	2.80
OTC	29.50	6.75	Teradata	13.00	-1.25	-8.77
NYS	7.75	1.38	Ultimate Corp.	4.00	-0.75	-15.79
NYS	13.75	1.75	Unisys Corp.	3.88	0.13	3.33
ASE	5.75	2.00	Wang Labs Inc. (b)	3.50	-0.25	-6.67

Software & DP Services — Up 0.15%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
OTC	63.00	17.00	Adobe Systems Inc.	43.88	0.63	1.45
OTC	13.50	5.75	Aicorp	5.75	-0.25	-4.17
OTC	59.88	20.25	Aldus Corp.	37.75	0.00	0.00
OTC	28.50	12.00	American Mgmt. Systems	18.75	0.25	1.35
OTC	17.25	7.50	American Software Inc.	13.63	0.13	0.93
NYS	4.63	1.38	Anacomp Inc.	3.75	0.00	0.00
OTC	23.50	10.00	Analysts Int'l	13.25	-0.75	-5.36
OTC	13.25	4.88	Ashton Tate	10.38	-0.13	-1.19
OTC	10.25	4.00	ASK Computer Sys.	8.13	0.13	1.56
NYS	37.00	22.63	Auto Data Processing	33.38	0.88	2.69
OTC	62.25	32.00	Autodesk Inc.	47.00	-1.50	-3.09
OTC	31.50	18.50	BGS Systems Inc.	28.00	0.00	0.00
OTC	43.88	17.75	BMC Software Inc.	37.25	0.50	1.36
OTC	20.50	8.75	Boole & Babbage Inc.	9.00	-0.88	-8.86
OTC	64.25	14.50	Borland Int'l	44.13	1.13	2.62
NYS	8.00	0.44	Businessland Inc.	1.00	0.00	0.00
OTC	20.88	5.13	Cognos Inc.	15.63	0.38	2.46
NYS	16.63	4.38	Computer Associates	10.00	-0.13	-1.23
OTC	17.75	9.50	Computer Horizons	10.25	-0.75	-6.82
NYS	73.25	36.75	Computer Sciences	69.63	0.50	0.72
NYS	11.25	6.63	Computer Task Group	7.88	0.25	3.28
OTC	24.25	13.00	Comshare Inc.	19.25	0.00	0.00
OTC	16.00	3.75	Corporate Software	9.00	-0.25	-2.70
NYS	49.00	27.88	General Motors E (EDS)	47.50	0.75	1.60
OTC	18.75	7.25	Goal Systems Int'l	13.00	-0.75	-5.45
OTC	7.00	1.88	Hogan Systems Inc.	5.56	0.44	8.55
OTC	24.63	7.75	Information Resources	23.00	-0.75	-3.16
OTC	17.50	2.63	Informix Corp.	5.75	0.00	0.00
OTC	7.88	1.38	Intellicorp Inc.	2.50	0.25	11.11
OTC	8.25	2.50	Interleaf Inc.	6.13	0.75	13.95
OTC	15.25	6.88	Intersolv	10.00	0.75	8.11
OTC	43.25	10.00	Knowledgeware Inc.	24.25	2.50	11.49
OTC	45.00	16.75	Legent Corp.	24.38	-0.75	-2.99
OTC	36.50	12.50	Lotus Development	32.25	-1.25	-3.73
OTC	32.00	11.25	Micrografx	11.38	-0.88	-7.14
OTC	78.38	33.88	Microsoft Corp.	61.75	-6.38	-9.36
NYS	10.50	4.00	On Line Software Int'l	10.13	-0.13	-1.22
OTC	22.88	4.88	Oracle Systems	8.13	-0.38	-4.41
NYS	14.25	7.00	Pansophic Systems	10.88	0.00	0.00
OTC	9.25	1.25	Phoenix Technologies	8.38	0.50	6.35
NYS	52.00	33.38	Policy Management Sys.	48.38	0.63	1.31
NYS	22.75	11.50	Reynolds & Reynolds	22.13	-0.13	-0.56
OTC	27.25	14.75	SEI Corp.	26.00	-0.25	-0.95
OTC	22.75	12.50	Shared Medical Systems	21.13	1.50	7.64
OTC	35.25	12.00	Software Publishing Corp.	14.00	-0.38	-2.61
NYS	14.63	5.50	Sterling Software	12.50	1.13	9.89
OTC	26.00	9.50	Sungard Data Sys.	16.75	0.00	0.00
OTC	55.88	17.75	Symantec Corp.	44.00	1.25	2.92
NYS	22.50	4.50	System Center Inc.	9.00	-0.75	-7.69
OTC	37.25	12.50	System Software Assoc.	14.25	-0.75	-5.00
OTC	22.75	4.75	Weitek	10.25	-0.63	-5.75

Semiconductors — Off 2.47%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
NYS	14.25	3.63	Advanced Micro Devices	11.38	-0.63	-5.21
NYS	12.50	5.50	Analog Devices Inc.	9.38	-0.13	-1.32
OTC	21.50	5.25	Chips & Technologies	7.88	0.25	3.28
OTC	59.25	28.00	Intel Corp.	42.88	-3.63	-7.80
NYS	13.00	5.13	LSI Logic Corp.	7.88	-0.13	-1.56
NYS	19.13	6.75	Micron Technology	11.63	-0.13	-1.06
OTC	20.88	7.25	MIPS Computer Systems	15.00	-0.63	-4.00
NYS	88.25	45.75	Motorola Inc.	65.50	-0.63	-0.95
NYS	8.38	3.00	National Semiconductor	5.75	0.13	2.22
NYS	47.63	22.50	Texas Instruments	34.50	1.25	3.76
OTC	12.25	3.00	VLSI Technology	7.25	-0.88	-10.77
ASE	14.25	3.50	Western Digital Corp.	3.75	-0.25	-6.25

Peripherals & Subsystems — Off 1.70%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
OTC	2.75	0.88	Apertus Technologies	1.75	-0.13	-6.67
OTC	22.63	7.50	Banctec Inc.	12.13	0.38	3.19
OTC	17.50	4.25	Cambex Corp.	12.13	0.13	1.04
ASE	11.75	4.13	Cognitronics Corp.	8.75	0.13	1.45
NYS	31.25	14.63	Conner Peripherals	17.00	0.88	5.43
ASE	22.00	7.00	Dataram Corp.	10.25	0.13	1.23
NYS	13.00	4.25	EMC Corp.	9.63	-0.50	-4.94
NYS	47.25	33.75	Eastman Kodak Co.	39.00	0.25	0.65
OTC	11.25	4.75	Emulex Corp.	7.38	-0.13	-1.67
OTC	29.75	14.00	Evans & Sutherland	19.50	-0.50	-2.50
OTC	6.50	3.88	Iomega Corp.	4.06	-0.31	-7.13
OTC	28.25	6.75	IPL Systems Inc.	21.00	2.25	12.00
OTC	1.38	0.13	Masstor Systems	0.69	0.00	0.00
OTC	15.88	2.63	Maxtor Corp.	2.69	-0.19	-6.50
OTC	18.00	4.38	Micropolis Corp.	6.00	-0.38	-5.88
NYS	97.50	73.63	3M Corp	90.75	-2.88	-3.07
OTC	13.13	6.00	Printronix Inc.	7.00	0.38	5.66
NYS	24.75	8.50	OMS Inc.	17.88	-0.50	-2.72
OTC	18.25	8.25	Quantum Corp.	10.13	-0.25	-2.41
NYS	7.63	4.38	Recognition Equipment	6.38	0.13	2.00
OTC	11.50	4.00	Rexon Inc.	7.13	-0.25	-3.39
OTC	19.88	5.63	Seagate Technology	7.88	0.38	5.00
NYS	47.00	11.00	Storage Technology	38.63	-0.50	-1.28
OTC	4.75	1.25	Tandon Corp.	2.88	-0.38	-11.54
NYS	26.88	11.63	Tektronix Inc.	26.63	0 50	1.91
OTC	0.53	0.16	Televideo Systems	0.25	-0.09	-27.33
NYS	60.13	29.00	Xerox Corp.	53.88	-0.13	-0.23

Leasing Companies — Up 0.49%

Exch	52-Week	Range		July 5 Close	Wk Net Change	Wk Pct Change
OTC	16.25	7.00	Amplicon Inc.	14.88	-0.13	-0.83
NYS	28.38	14.63	Comdisco Inc.	23.75	0.75	3.26
OTC	15.00	8.88	LDI Corporation	12.50	0.00	0.00
OTC	5.50	2.25	Selecterm Inc.	4.50	0.00	0.00

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Who'll win in alliance game?

Early predictions have the two players and Motorola coming out on top

BY PATRICIA KEEFE
and J. A. SAVAGE
CW STAFF

Sketchy details did not stop industry observers from working out some predictions and expectations for the pending alliance between IBM and Apple Computer, Inc.

What follows is the early conventional wisdom on the winners and losers if the alliance takes shape as planned. The following companies are most likely to gain:

• **Apple**, which gains the IBM stamp of approval and, potentially, the corporate acceptance so long denied it. IBM's marketing clout could boost sales of Apple products, as could the ability to fully connect to IBM networks and host systems.

• **IBM**, which will receive help in developing an object-oriented operating system that would presumably attempt to counter Microsoft Corp.'s New Technology OS/2. Access to the Apple interface and an ocean of Macintosh applications should serve to clearly distinguish IBM's role from Microsoft's.

Broader support for the RISC System/6000 and a low-end reduced instruction set computing (RISC) offering from Apple will round out IBM's RISC line and present a stronger challenge to Sun Microsystems, Inc. as well as the firms banded together in the Advanced Computing Environment (ACE) consortium.

• **Motorola, Inc.** The chip manufacturer gains a second chance in the RISC architecture business. Its current RISC chip, the 88000, has not been much of a hit.

Those companies and consortia with the most to lose include the following:

• **Microsoft.** Perceived by many as being slapped down by IBM and admittedly "worried," the MS-DOS and Windows powerhouse is served notice that it may no longer set the desktop agenda. With IBM gaining access to the Macintosh interface, Apple's lawsuit asserting that Windows infringes on Apple software looms even larger as a challenge Microsoft cannot afford to lose.

• **The members of ACE**, including Compaq Computer Corp. and Digital Equipment Corp. Their efforts to forge a new desktop computer standard must now confront unified opposition by the two largest personal computer manufacturers.

• **Intel Corp.** Its prominence as the engine of IBM's low-end platform is in question. While future Intel chips may show up in IBM systems, Intel foe Motorola has been anointed the merchant producer of the Power PC chip with which Apple will attempt to create a low-end RISC technology desktop line.

• **Hewlett-Packard Co.**, standing alone among major systems vendors, is claiming membership in none of the major alliances. It must face the prospect that its RISC chip technology will be viewed by software developers as one of the last alternatives to port to.

Standing together

An Apple/IBM alliance represents control over almost one quarter of the worldwide PC market

Worldwide unit sales (in millions)
Includes all units costing less than $25,000

	1989	1990	1991
IBM	2.7	3.0	3.4
Apple	1.5	1.6	2.1
NEC	1.1	1.3	1.4
Commodore	1.9	1.8	1.3
Total market	19.0	20.7	23.7

Source: Computer Intelligence/Infocorp

CW Chart: Janell Genovese

No done deal: Details remain to be resolved

BY PATRICIA KEEFE
CW STAFF

The IBM/Apple Computer, Inc. alliance announced last week is many things, but a done deal is not one of them.

The two have so far announced only a letter of intent to develop a new, open systems software platform. It could take as long as six months to dot all the i's and cross all the t's, an IBM spokesman said.

That is assuming the two desktop heavyweights are able to hammer out the details to their mutual satisfaction. Last week, Apple representatives repeatedly stressed that so far, it is only a "proposed" agreement.

Despite the potential here to combine the might of two industry giants, many observers, such as Jeffrey Tarter, publisher of the "Softletter" newsletter, are highly skeptical that anything much will come of the agreement. And nothing will, unless IBM and Apple are able to address the following issues:

• They have to get beyond the differences between what is perceived as IBM's host-centric agenda and Apple's personal computer-centric market view. These differences have apparently destroyed a similar alliance between IBM and longtime partner Microsoft Corp.

• Apple has to walk the fine line between opening up its technology and retaining the uniqueness of its products.

• IBM will have to position its desktop hardware vis-a-vis Apple's existing and planned product line as well as map out how OS/2 and Presentation Manager will be affected by the new object-oriented operating system now under development.

• Both vendors will have to prove to developers that the alliance means business and that it can deliver operating system software on schedule.

• Connectivity among the companies' products is thought to be the earliest tangible outcome of the alliance. Actual products and enhanced network management delivered early could have a major impact; delays and foul-ups would be tough to overcome.

Beyond these issues, the letter of intent signed last week leaves questions unanswered, starting with details about the software subsidiary.

The announcement made no mention of patent exchanges or cross-licensing. Such an agreement would presumably shield IBM from adverse impact if Apple were to win its infringement suit against Microsoft and its Windows product, which is very similar visually to the Presentation Manager interface of OS/2.

The firm being formed to develop an object-oriented software environment that would accommodate applications written for OS/2, the Macintosh and IBM's AIX leaves unanswered the fate of Patriot Partners.

That venture with Metaphor Systems, Inc. is charged with developing an object-oriented environment that will support both OS/2 and AIX.

Restrained reaction

Information systems directors interviewed last week were adopting a wait-and-see attitude about the IBM and Apple alliance. To most, it was no different than other industry agreements that have been forged over the past few years.

"To be honest, it sounds like just another marketing line," said Michael Coxhead, vice president of MIS at JMB Properties Urban Co. in Chicago. Coxhead added that the announcement "sounds great, but I am waiting to see if any actual products come out of it."

JMB maintains between 200 and 300 DOS-based PCs at headquarters and an additional 200 or so in field offices. Coxhead said that initially, it looks as if IBM may be using the agreement to create a stronger vehicle for the OS/2 operating system.

Dennis A. Watz, data processing manager at Paramount Headwear, Inc. in Bourbon, Mo., said his firm is interested in the announcement, but "we are going to wait and see how this actually works; it could be several years before any products are actually available." Paramount maintains more than 50 IBM DOS Personal Computers and several Apple Macintoshes.

Robert Bond, MIS director at Arthur Andersen & Co. in Dallas, who ultimately oversees the 700 DOS-based PCs at the company, said he feels the alliance will allow IBM to become more creative in its approach. "The thing that interested me the most was that IBM is now starting to do things with companies like Wang [Laboratories, Inc.] and Apple," he said.

Jerry Kanter, director of the Center of Information Management at Babson College in Wellesley, Mass., said the IBM corporate culture often makes it difficult for IBM employees to work effectively with smaller companies. He cited tensions with Microsoft as an example of "egos knocking against each other."

SALLY CUSACK

Open systems

FROM PAGE 1

prove to be the user-friendly interface needed to push Unix into widespread use.

Analysts were split on the danger an Apple/IBM reduced instruction set computing (RISC) drive poses to Sun Microsystems, Inc. Jeffrey Tarter, publisher of the "Softletter" newsletter, said Sun has a five-year lead with its platform and ancillary tools.

But William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass., said Sun is not a software company, and it is under pressure now. "If Sun doesn't come up with applications but fast, they are going to be cornered," he said.

Apple and IBM said they will focus systems development efforts on Power PC, a single-chip implementation of RISC System/6000 to be developed by IBM and Motorola, Inc.

An IBM spokesman said the firm already has a single-chip implementation in its Burlington, Vt., laboratory, hinting that it may be announced by year's end.

The long-term effort by IBM and Apple to develop an object-oriented operating system that will run across all systems using Intel Corp.'s microprocessors, Motorola's 68000 chips and IBM's RS/6000 could spur support from developers who would be able to write applications once to the alliance-produced object-oriented operating system.

But there was no indication that the object-oriented software will be sold to other vendors. The announcement said only that it will be marketed widely by the new company being formed by IBM and Apple for use on other vendors' systems.

Apple and IBM also plan an open, multimedia platform built around Apple's Quicktyme product, and they said they will make the software available to other vendors. Although the details are sketchy, a jointly developed IBM and Apple multimedia platform could provide the duo with a big, early strike against Microsoft, which is backing the Multimedia PC Standard.

"We think the multimedia platform that Microsoft proposes is inadequate," said Don Casey, vice president of Lotus Development Corp.'s spreadsheet division. "Microsoft's software support is so far behind the Mac platform as to be essentially a Neanderthal tool kit," he said.

Treaty

FROM PAGE 1

announced plans to jointly form a software company in a far-reaching alliance that, if successful, would produce a new object-oriented operating system and a major overhaul of IBM's AIX and RISC System/6000 product lines.

Few observers were willing to write off the alliance, but there was also little expectation that it would have any immediate impact.

Information systems executives took a wait-and-see stance, saying the marketing pitch sounded fine, but there are no products to evaluate (see story page 102). The computer industry's version of the odd couple signed a letter of intent last Wednesday, saying it could take as long as six months to iron out the contractual details.

Nevertheless, Ballmer acknowledged that his company is "worried," although "not panicking." That view was seemingly shared by the stock market, which dropped the price of Microsoft stock almost five points last Wednesday, falling another two points Friday afternoon.

Ballmer derided IBM for announcing another in a series of "mutually contradictory strategies." Conversely, Microsoft's strategy can be summed up as "Windows, Windows, Windows," he said.

If the strategy is unclear, the goal is not. Tired of taking it on the chin and in the pocketbook, IBM is determined to wrest control over its desktop destiny away from Microsoft, according to industry observers.

Analysts were highly skeptical of the two- to three-year time frame proposed for product delivery; most predicted a more realistic four- to five-year rollout, if at all. The two companies have "both proven they can't write system software any faster than the grass grows," said Jeffrey Tarter, editor of the "Softletter" newsletter.

Ballmer says *alliance implies OS/2 desertion*

The fact that IBM is clearly going in a different direction may have already detracted from Microsoft's stature. "Microsoft's power is definitely diminished," said Tim Bajarin, an analyst at Creative Strategies Research International, Inc. Esther Dyson, editor of the newsletter "Release 1.0," agreed: "Microsoft is not about to own the whole industry."

A key piece of the alliance strategy involves putting the Macintosh interface on other machines. This will "blunt Microsoft's bid to make Windows the preeminent graphical user interface," said Bill Bluestein, an analyst at Forrester Research, Inc.

Developers by and large described the alliance as great for the industry, but few were willing to dismiss Microsoft out of hand. "Microsoft continues to have the dominant position in operating systems," a Lotus Development Corp. spokeswoman said.

Heidi Roizen, president of T/Maker, a Mountain View, Calif., Macintosh developer, said development of standards between the IBM and Apple worlds will broaden opportunities for companies like hers. Currently, those developers must rely on one vendor for the CPU and the operating system, and "that's a precarious position," she said.

Software developers lining up behind IBM and Apple would add to the pressure on workstation rival Sun Microsystems, Inc., which could find itself caught in a vicious squeeze between Apple on the low end and IBM on the high end. The Advanced Computing Environment consortium could crumble into much ado about nothing.

However, the outcome is not assured. Apple risks alienating loyal users and employees, attracted by its unique — and some say outsider — approach to computing (see story at right). On the other hand, IBM's recent efforts to revive OS/2 may hit a snag if users perceive it to be a holding action in face of plans for a new object-oriented operating system.

For now, existing desktop purchases and development plans are expected to move forward unscathed by the news. "Anything bought today will be fully depreciated by the time IBM and Apple deliver," Dyson said.

Senior Writer James Daly contributed to this report.

The big guy on the block gets bigger

Teaming up with a proven high-growth PC company is seen as a smart and strategic move for IBM

	1991 PC unit sales through April	Percent change in first four months of 1991 vs. first four months of 1990
IBM	273,400	-1%
Apple Computer, Inc.	162,900	93.4%
AST Research, Inc.	37,900	-20%
Compaq Computer Corp.	180,500	-12.7%
Hewlett-Packard Co.	18,400	60.6%

Source: Storeboard

CW Chart: Janell Genovese

Apple's IBM courtship: Bravado or genius?

BY JAMES DALY
CW STAFF

Is Apple Computer, Inc.'s proposed linkup with IBM an act of desperation or daring? A little of both, noted most observers, who said the erstwhile rivals were pushed together by industry trends that threaten to leave them both behind.

Apple's ambitious plan is an integral part of a changing business strategy to make the Macintosh personal computer more accessible. The addition of several low-cost models last fall as well as the debut of a beefed-up operating system in May are pillars of that strategy.

The firm's latest gambit could expand Apple's business in several ways:

- Psychologically, the Macintosh has always been a tough sell in the corporate world. Apple's alliance with IBM could go a long way toward helping it attract major enterprisewide accounts.

"It adds a lot of legitimacy to Apple in the eyes of a lot of MIS guys whose worlds revolve around IBM," said Craig Danuloff, author of *The System 7 Book* and several other Macintosh-related publications.

- By co-developing and marketing an enhanced version of IBM's AIX Unix operating system, Apple gains a new argument for implementation in scientific and government information systems shops.
- It clarifies Apple's heretofore muddy plans regarding reduced instruction set computing (RISC)-based technology: Apple intends to use a single-chip implementation of IBM's RISC System/6000 Power architecture in future Macintoshes.
- Both companies intend to share at least a portion of their sales and marketing staffs as they co-develop networking and communications products.

Apple, however, must pay a price for the improvements, providing IBM with technological acumen in two areas in which it has always beaten its rival: networking and multimedia. Apple scientists are expected to provide IBM with the Appletalk code in order to facilitate the creation of a new networking product line.

How and when the jointly developed products may be delivered remains to be seen.

James Goodnight, president and founder of SAS Institute, Inc., said that in the process of setting up a new company, "you are talking two or more years before any product goes out the door. Two years minimum."

If the joint Apple/IBM products do reach the market, their success is not a foregone conclusion. The erratic success of technologically savvy companies such as Next, Inc. and the difficulties IBM has had selling OS/2 underscore that no matter how good a technology is, users may not bite.

Ultimately, the only loser in the alliance may be Microsoft Corp. Neither IBM nor Apple had been doing very well in stemming the success of Windows alone. Together, they might be the only force that can slow its advance.

Still, it is anyone's guess whether both Apple and IBM can endure the pain of starting a new operating system. According to Danuloff, "Fear brought them together, but it's not clear that fear is enough to maintain a relationship."

Lawyers see no resistance to merger

BY NELL MARGOLIS
CW STAFF

Although it could rewrite the competitive rules in the personal computer market, the alliance between industry powerhouses IBM and Apple Computer, Inc. is unlikely to run into resistance from government antitrust regulators, attorneys said last week.

The pact "is bound to raise eyebrows at all levels of the regulatory establishment," said Guive Mirfendereski, an international corporate lawyer at Boston-based Gaston & Snow.

However, Mirfendereski added, antitrust law can be seen only against the background of prevailing political policy. The policy that has been evolving since the early 1980s, he said, can be summed up as "hands-off."

The U.S. Department of Justice "is aware of the [alliance] and examining it, but it's too early to know if there are any antitrust concerns," spokesman Joseph Krovisky said.

Mirfendereski said that while such a venture might have been attacked as monopolistic in earlier decades, "there is a search on for ways to rejuvenate U.S. competitiveness in the global market, particularly in the technology industry."

However, antitrust attorney Alan Weinschel, a partner at New York-based Weil, Gotshal & Manges, bristled at the suggestion that antitrust vigilance is history. "I don't think I'd assume that the government's concern with U.S. competition in the global market means that antitrust is dead," he said. "One look at the [Federal Trade Commission]'s current investigation of Intel and Microsoft should dispel that notion."

While he agreed that the deal is likely to come under antitrust scrutiny, Seattle-based computer attorney Joel Gilman said it could pass. "One of the key questions will be, does it have the effect of significantly reducing competition in the relevant market? But what is the relevant market? The desktop? There's a lot of room for interpretation."

HP forming consortium to push proprietary platform

PALO ALTO, Calif. — Hewlett-Packard Co. will be the last major reduced instruction set computing (RISC) vendor to announce a consortium to push its architecture. The consortium, which has no name yet, is slated to be announced this fall.

"We're going to make it an exclusive club," said Willem Roelandts, vice president and general manager of HP's Networked Systems Group. Currently, its licensees include Hitachi Ltd., Samsung Electronics Co. and Sequoia Systems, Inc. An HP spokesman said "a couple" more companies license its RISC architecture, which is called PA-RISC, but the spokesman would not disclose those companies' names.

However, Michael Goulde, an analyst at Open Systems Advisors, Inc. in Boston, insisted that it is an exclusive club because HP has not been able to sign up other vendors. "HPers are globe-hopping to sign them up; they want to play the same [consortia] game," he said.

Initially, the organization will be led by HP, according to Roelandts, but it will evolve into open control over time.

J. A. SAVAGE

NEWS SHORTS

Sweden hunts computer ailments

Swedish authorities are seriously looking into the fact that some people become ill when they work at computer terminals. The Swedish Working Life Fund recently gave L. M. Ericsson-owned Ellemtel a grant of $1.4 million to pursue research on the subject. The company is putting up $1.24 million of its own money. Ellemtel is already working to reduce the incidence of illness among those working with computer-aided development applications. The firm has reduced electromagnetic fields, both in the employees' offices and on home computers. It has also improved the indoor air and thrown out thick carpets. Ellemtel is one of the few companies in Sweden that has openly acknowledged that its staff has physical problems working in front of terminals.

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Microsoft extends OS/2 contracts

Microsoft Corp. said last week that it is extending existing OS/2 Version 1.3 license contracts to include IBM's OS/2 Version 2.0, slated to ship near the end of the year. The 32-bit multitasking Version 2.0 was primarily developed by IBM under an ongoing joint development project between Microsoft and IBM. Microsoft said that extending the contracts will allow computer manufacturers to stay competitive with IBM on Version 2.0 availability and pricing. Microsoft OEMs will reportedly receive the exact code that IBM ships, so products such as OS/2 Extended Services/2 and Officevision will run on other manufacturer's machines.

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Helix brings out memory aid

Users looking for extra DOS memory can find some elbowroom in Netroom from Helix Software, Inc. The memory management software announced last week uses a proprietary method called "on-demand swapping" to open up more than 600K bytes of extra memory, according to the company. A single-user license is priced at $79, and multiuser licenses are available.

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Yet another LAN

Users of DOS-based personal computers have another local-area network operating system choice as of today. This one is from Gateway Communications, Inc., which is based in Irvine, Calif. Targeted at small to medium-size computing work groups running Ethernet, the company's Great OS includes such features as distributed file sharing, electronic mail, systems management, security, backup and access to remote communications products. The software comes in five-, 10- and 15-user site licenses and costs $495, $795 and $995, respectively.

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Commerce cites dumping

The U.S. Department of Commerce confirmed last week a preliminary finding that personal word processors from Japan are being sold in the U.S. at less than fair market value. If the International Trade Commission finds within 45 days that the dumping harms or threatens to harm U.S. companies, the U.S. will impose penalties of 58.7% on the imports, which totaled $119.5 million last year. Smith Corona Corp., which filed the dumping complaint, said companies such as Brother Industries Ltd., Canon, Inc. and Sharp Corp. sold units in the U.S. for $400 that were priced in Japan at $1,000. In a separate matter, the Commerce Department is expected today to announce a final decision on whether Japanese companies are dumping flat-panel displays.

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NASA reopens bid

Encore Computer Corp. last week won a round in its challenge to a major contract awarded to IBM by the National Aeronautics and Space Administration (NASA). Encore said NASA issued a notice withdrawing the IBM award and reopening it strictly on the basis of price. Encore had filed a protest against the IBM win on June 3.

Users target

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those based on the number of people using the package and network-based pricing.

Software pricing is coming under increasing scrutiny at the highest levels of information systems because software has continued to increase as a percentage of budget, with price increases averaging 10% to 15% annually, according to Barbara Sannerud, a program director at Gartner Group, Inc. in Stamford, Conn. Sannerud acted as the group's facilitator during its start-up.

"Users and vendors want to work together to resolve these issues in a positive environment," Sannerud said. "The feeling is that you get more accomplished that way than you would in an antagonistic vendor-bashing session."

Sannerud would not disclose the names of specific users involved but said they are among the country's largest banks, insurance companies, airlines and services companies. Primarily Fortune 100 companies, they have among them $1 billion in software buying power, she said.

Mum's the word

Sources close to the group confirmed that Mobil Oil Corp. in Fairfax, Va., and the U.S. Postal Service in Washington, D.C., are members. Group members are staying mum for now. Several were unavailable for comment last week, and one other said through an intermediary that the group would prefer not to go public until next year to give the users time to conduct follow-up negotiations with vendors.

At last month's meeting, some of the vendors — including CA — were taken to task for policies including transfer fees, according to sources at the meeting. This involves paying a fee — in some cases up to $10,000 — for transferring software from one mainframe to another. Users are faced with this problem when consolidating data centers or as a result of corporate mergers and acquisitions. A CA spokesman said, "Transfer fees are decided on almost a case-by-case basis because every situation is unique."

However, not everyone's mind will be changed overnight. An IBM executive interviewed last month said only that the company is looking into new pricing models to apply to new technologies but that IBM does not intend to change its tiered pricing scheme for existing products anytime soon.

Sannerud said the user group's challenge is "to see that there are active outcomes — that it's not all lip service from vendors who might promise and not deliver." The organization's next meeting is scheduled for September.

User group hits pricing nerve

Software pricing issues raised by a new user group have hit a responsive chord among IS executives.

"This sounds like a good group and an excellent forum to discuss issues," said Jack M. Cooper, chief information officer at Joseph E. Seagram & Sons, Inc. in New York. Cooper said the pricing issue that perplexes him the most is "inconsistency. One day, in one country, it's X amount. The next day, in another country, it's Y amount. We need some reasonable order and consistency."

Kenneth A. Krallman, MIS manager at Carleton Technologies, Inc. in Orchard Park, N.Y., said his key issue is per-user pricing. "If software is only going to be used by two or three people, I can't afford to put it on the big boxes. They have it for some packages, but they need it across the board." He said per-user pricing is both a business and technical issue for vendors. "Assuming they want to do it, it becomes a question of how." It may take two or three years before some of the issues are worked out, he added.

But David Carlson, senior vice president of corporate information systems at K Mart Corp. in Troy, Mich., said he does not think the user group is such a good idea. "I wouldn't get within 50 miles of that meeting without having our corporate counsel for antitrust with me. The word *collusion* comes to mind," he said. "The idea of purchasers sitting around a room talking about prices scares me to death. We deal with vendors one-on-one, and in that free-market environment, one can do anything. It's called negotiation."

One senior IS executive at a New York bank, who did not want to be identified, said, "It's a double-edged sword — I'm not sure I'm for it or against it. On one hand, as a buyer, I want fair prices, but on the other, we need to understand that we want the vendors to keep making investments in technology and to provide them a return on their investments for the risks they take. I think it's worth some debate."

Driving these issues, in addition to the rising prices of software, are a couple of other factors, users said. Hardware vendors are deriving more of their revenue from software, and the tiered pricing model IBM announced in October 1986, which other vendors have followed, is no longer valid because of changing technology and other factors. "We used to assume that we could follow IBM and be safe," said an executive at a software vendor. "But IBM doesn't have such a stranglehold anymore, and we have to come up with new ways of doing things."

Alliance focusing on photonic technology

BY CAROL HILDEBRAND
CW STAFF

The research community in New Mexico hopes to reach out and pique the interest of private sector companies with an effort to develop commercial uses for light-based electronics research.

The Alliance for Photonic Technology, announced today, will target technologies such as the following:

- Semiconductor diode-based visible lasers.
- Multidimensional optical interconnects such as spatial light modulators for high-capacity computing.
- High-speed optoelectronics for high-definition television.

The alliance — a loose confederation of Los Alamos National Laboratory, Sandia National Laboratories, the U.S. Air Force's Phillips Laboratory and the University of New Mexico — will work from a small office on the university grounds.

According to interim director Larry Anderson, the new venture is not the same species as such traditional consortia as Microelectronics and Computer Technology Corp. or Sematech.

"The alliance is not a consortium," he said. "Its role is as a facilitator, a conduit through which joint cooperative research and development agreements can be negotiated between a company and one or more of the participants."

Anderson said his office will try to raise the awareness of U.S. firms to commercial twists research can take. He said that although almost all basic photonics innovation is U.S.-based, almost no components using the technology are made in the U.S.

Unix

FROM PAGE 1

"Conservatively speaking, we're three to six years away from shrink-wrapped software," said Rikki Kirzner, an analyst at Dataquest, Inc. in San Jose, Calif. "It will happen first in specific product families. We're much further away from cross-family portability."

Consortia are working to help architecture-specific portability. Groups such as Sparc International in Menlo Park, Calif., 88open Consortium in San Jose and the Advanced Computing Environment are among the biggest motivators for shrink-wrapped software.

They are all attempting to facilitate such applications by specifying interfaces and garnering independent software vendors to port to their architectures.

However optimistic vendors remain about the portability of large applications, some observers warned that shrink-wrapped applications above the desktop level will probably not happen. "There's a high degree of customization required for large, corporate types of applications," said Tom Willmott, president of Aberdeen Group, a Boston consulting firm.

Increasing the numbers

The escalating wars over market share between architectures, including the above consortia as well as IBM and Hewlett-Packard Co., will influence the number of applications available and the number of versions of an application necessary under each shrink-wrapped cover.

"As a software vendor, I may choose to create shrink-wrapped for Sun [Microsystems, Inc.] or Intel [Corp.] because they have volume," said Bruce Mitchell, president and chief executive officer of Siren Software Corp., a Menlo Park-based software vendor. Siren's products could then be found on some of the more popular platforms, but that would leave users with more varied computer brands out in the cold, he added.

This consideration — which applications get ported first to specific hardware platforms — is already a large issue for users. Pearle, Inc., the Dallas-based parent of an eyeglasses supplier chain, had to switch Unix horses in midstream because of it.

"When we began looking for our point-of-sale system two years ago, we originally chose [IBM's] AIX," said Colby Springer, vice president of information systems. "But we had to negotiate into contracts that vendors would port their software to AIX, and often that port would not be the latest version of the software." So the firm went with The Santa Cruz Operation's Unix version "because we wanted to be closer to the front of the line than the back," he said.

Most industry watchers said it is probably unreasonable to expect shrink-wrapped software for Unix similar to that which exists for DOS. "The notion of shrink-wrapped software had its genesis in an environment where most of the important details were nailed down," said Al Hankinson, chief of the systems and software technology division in the computer systems laboratory at the National Institute of Standards and Technology in Gaithersburg, Md. "In an open systems environment, there is no homogeneity in terms of the platform details."

Part of the problem is politics. Inder Singh, president and CEO of Lynx Real-Time Systems in Los Gatos, Calif., said consortia are helping to push a unified Unix, to include all platforms. "But because of infighting, it is going slowly — very slowly."

Part of the infighting involves disagreement over the graphical user interface for Unix, a component to shield users from the complexity of the operating system.

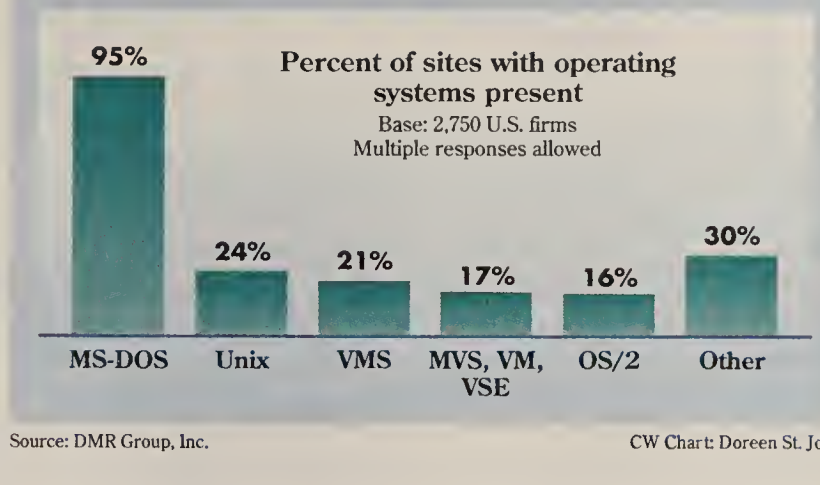
Although many observers said that the Open Software Foundation's Motif has already won in the market, Sun's Open Look also has quite a following, and last week's announcement by IBM that it will make the Apple Computer, Inc. interface available on a future version of its AIX Unix system may further confuse the issue.

If and when users get shrink-wrapped applications in hand, there will remain a question of optimization. With tweaking, applications can run up to 25% more efficiently on a particular machine, according to Mitchell.

The exponentially increasing power of reduced instruction set computing, however, could obviate that extra programming. If there is computer horsepower to burn and that horsepower is relatively inexpensive, it becomes a trade-off between programmer time for customization and accepting a plain vanilla application that is not necessarily running optimally on a computer.

Multichoices

In terms of presence at given sites, Unix is already the most widespread multiuser operating system in corporate America



Source: DMR Group, Inc.

CW Chart: Doreen St. John

A new wave in portability?

Finding completely portable applications has been rather like searching for the Holy Grail: No one has found the way. Still, a new technology holds out some hope for the late 1990s.

The Architecture Neutral Distribution Format (ANDF) is being promoted by the Open Software Foundation (OSF) as the foundation on which portable applications can be built. Although ANDF seems to be technically feasible, observers said, many factors will determine its success.

First, ANDF has to be implemented by hardware and software suppliers throughout the industry, not just by OSF members. Second, the technology is so new that vendors may not be willing or able to manage the process effectively. Finally, ANDF's general availability is slated for late next year, although it will be ready for previews and comments from vendors before then.

The goal is to provide software suppliers with the ability to develop one version of their software to sell and support across all platforms.

Pat Riemitis, business area manager at the OSF, said, "None of our vendors have committed to anything yet."

However, IBM, Hewlett-Packard Co. and Groupe Bull, among others, "are looking at it."

In the ANDF scheme, an application would be developed and partially compiled by software vendors using a "producer." The software is distributed in this format. Then, an "installer" would be used to completely compile the code. The installer could be in the hardware, or the process could be handled by a retail outlet or systems integrator that sells the software.

"The machine-specific transformation is done at the back end," Riemitis said. "The installer calls up a table of specifics and interprets those for the hardware." The OSF is working with applications developers to define those tables, she said.

Stephen Basile, manager of engineering services at ERI, a systems integrator in Hauppauge, N.Y., said, "ANDF is an even better target for the industry to shoot for than a single shrink-wrapped standard. That really puts the power in the hands of the user because he will be able to choose the application he wants on the platform he wants."

ANDF was developed by the Electronics Division of the Defense Research Agency in the UK, which gives it a good shot at being adopted internationally, some said.

ACE moving to be first

The Advanced Computing Environment (ACE) consortium has promised to be first to deliver shrink-wrapped Unix software. The group of about 60 hardware and software vendors has its plans based on the PC model of software interoperability, with boxed-up applications appearing in stores, catalogs, vendors and resellers.

"If you walk into a computer store a year from now, you'll see application 'A' from ACE on Mips [Computer Systems, Inc.] and Intel," said Joe Menard, director of Ultrix marketing at Digital Equipment Corp. in Maynard, Mass. Ultrix is a version of Unix.

Some of the popular DOS applications have already moved into the Unix world. Lotus Development Corp.'s 1-2-3 spreadsheet, for example, is available in several Unix flavors, as are some other leading DOS applications.

Rod Canion, CEO at Compaq Computer Corp. in Houston, said that in addition to the spreadsheet and word processing applications that are relatively easy to box up, ACE-compliant software will include mission-critical applications "that will have a degree of portability across platforms."

However, one of the biggest software retailers, Egghead Discount Software in Issaquah, Wash., is not sure about the prospect of more boxes on its shelves. The company said only that it is in the initial stages of evaluating shrink-wrapped Unix.

In the near future of shrink-wrapped products, a single application could have many ports, which could limit distribution channels. "A store would have to have shelf space for 16 versions of an application," said David Ticoll, director of Toronto-based consulting firm DMR Group, Inc. Carl Stork, advanced development business manager at Microsoft Corp., predicted fewer versions of any one application. He said that an application box could include disks for each architecture.

More likely in the near term are catalog sales or compact discs that let a user take an application for a trial run. CDs, such as those from Highland Software in Palo Alto, Calif., can put users in touch with software vendors through electronic mail. They let users make on-line purchases with a credit card or purchase order and can often be booted up from the catalog CD with a key provided by the vendor.

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Actually, they'll probably be grossed out

"Your readers should be quite receptive to the enclosed photographs and information regarding the availability of the 'world's smallest' load cell ... used [in such areas as robotics] to measure force and pressure." – *From an A.L. Design, Inc. press release*

Quips & Quotes

"Personally, when I want to experience virtual reality, I take drugs."
Rock and roller
Todd Rundgren,
Utopia Grokware

Another PR gem

"Lattice, Inc. is celebrating its 10th anniversary with a 'Lattice Dudes Look-Alike Contest.' Lattice Dudes are characters used by Lattice in illustrations of its RPG products and services." – *From a Lattice press release*

W.Y.S.I.W.Y.G.

SCHOOL DAZE

Costs of the Top 10 executive MBA programs

Famous offspring

Many successful computers have had somewhat less successful predecessors. Can you name the predecessors of the following?

1. The Apple Computer, Inc. Macintosh
2. The Digital Equipment Corp. PDP-8
3. The IBM 360 Model 90

1. Lisa 2. PDP-5 3. Stretch

AD NAUSEUM[4]

The IoPP R³P² Task Group has become a task group inside R³P² (Resource Reduction and Recycling of Protective Packaging), which is a task group of P²C² (Protective Packaging of Computer and Components), which is a committee of IoPP (Institute of Packaging Professionals) – *Description of a Silicon Valley organization aimed at reducing waste in packaging computers*

BOOK BEAT

Stupid PC Tricks is a book that comes with a floppy disk full of tricks to make your PC fun:

- **FOOL**, a charming DOS irritant that pops up from time to time while you're entering data at the DOS prompt and insults you before executing the command you've entered. Remarks include "Eat my shorts" and "Learn to splel, danmit!"
- **MUTANT**, a program that makes your computer sound as if it is possessed by a demon that manifests itself as anything from a hyperactive squirrel to a caffeine-crazed blackbird.
- **PARASCAN**, an imitation virus detection and correction utility that claims to find such viruses as the ABC News Virus (spreads false data around your system) and the Gumby Virus (makes crude, vulgar and insulting remarks through the PC speaker).

▶ Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Jodie Naze at (800) 343-6474. If we use your ideas, we'll send you a gift.

Sources: *Business Week's* Guide to the Best Business Schools (McGraw-Hill, Inc.); *Stupid PC Tricks* by Bob Le Vitus with Ed Tittel (Addison-Wesley Publishing Co.); *Media Age* magazine, May 1991; special thanks to The Computer Museum, Boston.

INSIDE LINES

Do they have your profile?

▶ Privacy advocates are upset about Citiprofiles, a new Citicorp service providing merchants with consumer demographics and buying patterns drawn from a database covering more than 30 million Citibank Visa and Mastercard users. The U.S. Privacy Council plans to fire off a letter demanding that the program be stopped until Citicorp notifies consumers and obtains their consent to search through credit-card transactions. Cardholders can have their names removed from the marketing lists, a Citibank spokesman said.

Direct-mail opportunities

▶ Apple is planning to take its System 7.0 pitch to the streets next month with its first direct-mail campaign, a 500,000-piece mailing that will give Macintosh users their first opportunity to order operating system upgrades directly from Apple. The Cupertino, Calif., firm has typically pointed customers toward authorized dealers. Apple officials say they expect little flak from dealers because the $99 price is not a high-profit item and the software will be available from dealers for several weeks before the mailings begin.

Psst, hey buddy, wanna buy a virus?

▶ John McAfee, president of the Computer Virus Industry Association, reported to us (incredulously, we might add) that *Microtimes*, a computer magazine, is running an ad for a company that will sell you a working copy of the Jerusalem virus. All it takes is a call to HLD Publishing Co., according to the ad. When we called, a company spokesperson confirmed that the virus is indeed for sale for a mere $29.99.

Can these two share a room?

▶ Hyatt Hotels is considering integrating its data network, now carried on MCI Communications facilities, with the customized private voice network from AT&T it has been using for the past year. A senior official at the Hyatt Technical Center in Oakbrook Terrace, Ill., confirmed that the hotel chain is reviewing a plan that would add the data as a 56K bit/sec. channel in the spare capacity on the T1 line that the majority of the Hyatt's 90 or so properties use to connect to the AT&T network.

Bull service force feels cuts

▶ Sources say some pretty heavy hits were taken by Bull HN's field service unit last Friday. Christopher Dorval, director of corporate communications at Bull, said the layoffs were part of Bull's transformation plan announced last November, when the financially troubled company said that 2,500 persons would be cut from the North American work force during the next 13 months.

Trying to get it Perfect

▶ Wordperfect beta-test users say the company is telling them to expect their copies of Wordperfect for Windows two weeks from now.

IBM mini to take workstation role?

▶ Some industry observers say they are expecting a September debut and a price tag under $10,000 for the smallest model yet in IBM's Application System/400 midrange line. The Model D2 will pack 8M to 16M bytes of main memory and 1G byte of disk storage, allowing up to a dozen users and making it ideal for small businesses and remote offices of larger companies that need more than a workstation but less than a minicomputer. Analysts are also betting that IBM will farm these tiny AS/400s out through other distribution channels, perhaps even bearing a different vendor's logo.

One has to wonder exactly who dotted the i's and crossed the t's to the IBM/Apple pact, as just about every executive at the two firms seemed to be enjoying the benefit of extended Independence Day holiday weeks. One shudders to think that this deal may have been wrapped up by the respective public relations spinmasters, but we're bound to find out down the road. Where will all this alliance-forging lead? How will former enemies explain changes of heart to customers that were previously led in different directions? You tell us. Contact News Editor Pete Bartolik at (800) 343-6474, zap us the fax at (508) 875-8931 or tune in electronically via our Compuserve address, 76537,2413.

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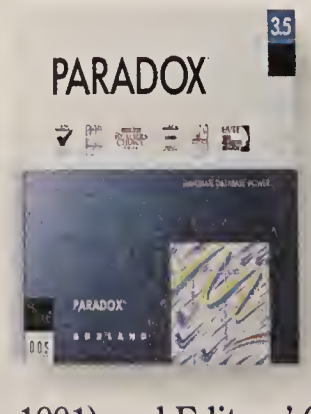

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